NOKIA

SERIES 60 UI STYLE GUIDE

Editorial notes

A style guide should give an overview and provide enough guidelines for designing good applications, but not all the information to write the software. This is intended to be a compact and easy to read guide, which means skipping many details that can be found in other documents. There's no general discussion about good usability; instead this document tries to clarify how the style elements of the Nokia Series 60 user interface are meant to be used in practice.

The content is also intended to be independent of product-specific hardware, so that the guidelines would apply to any product that implements the UI style. Sometimes this means dropping out things that would be appropriate for one product but maybe not for another one.

A few example images in this version are not final.

Seppo Helle, 31.10.2001

Contents

About this document

Purpose

The Nokia Series 60 UI Style Guide gives an overview of the Series 60 user interface and describes the essential parts of it, giving examples of how to use the interface elements.

The Nokia Series 60 UI Style Guide can be used as an introduction to the style or as reference material. It can provide background material to help UI designers make decisions about their product.

Audience

This document is intended, in the first place, for people who work with application design for devices using the Series 60 UI.

It will also help persons like product managers to get a general view of the Series 60 UI, what it is and how it is intended to be used.

1. WHERE NOKIA SERIES 60 UI BELONGS

Nokia Series 60 UI is intended for use in higher end mobile phones featuring personal information management (PIM) and multimedia applications such as:

- Calendars
- Text and multimedia messaging
- E-mail
- WAP or other browsers
- Imaging

The screen is suitable for viewing short messages and can also display colour or grayscale images.

The data entry interface is optimised for a numeric ITU-T type keypad. Other input devices are not considered in this document although it would be possible to support, for example, an external keyboard.

One hand operation is a key rule: the user is able to do almost all tasks with just one hand, pressing the keys with the thumb. A few exceptions exist in functions that are targeted to power users and require pressing two keys simultaneously.

Nokia Series 60 UI is not an optimal user interface for very basic phones. All basic phone functions can be done with it, but the capabilities of Series 60 UI would not be fully utilised. There are other interface styles that are better than Series 60 UI for the very basic phones.

Series 60 UI is also not designed for car based or wearable products, or for other product categories significantly different from advanced hand-held mobile phones.

2. HARDWARE REQUIREMENTS

Nokia Series 60 UI has certain requirements concerning the hardware. This section lists the assumed hardware for the first implementation; it is possible to extend and modify the hardware to some extent for subsequent product generations.

Display

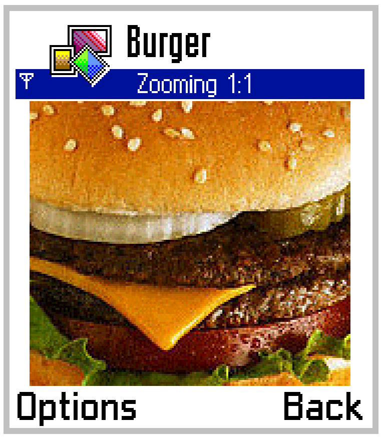


Figure 2-1. Series 60 display.

The Series 60 UI display specifications are as follows:

- Resolution: 176 pixels (width) by 208 pixels (height).

  It should be possible to modify the vertical resolution for future generations. The first implementation, however, assumes these resolutions.

- Square pixels.
- Physical size: about 35 mm (width) by 41 mm (height). Corresponds to approximately 0.2 mm pixel pitch.

  Significantly smaller pixel pitch risks making some fonts too small to be readable. Larger pitch is possible, considering usability issues.

- Colour capability (4096 or more colours preferred).

Keys

The following keys are required for Series 60 UI:

navigation keys	Scroll up Scroll down Scroll left Scroll right Select key
softkeys	Left softkey Right softkey
call handling	Send key End key
other	Applications key ITU-T numeric keypad (0-9, *, #) Clear key Edit key Power key

- The navigation keys can be ordinary buttons, or they can be implemented using different control devices, for example a roller which can be rotated and pressed so that up, down and select functions would be mapped to it.
- Hardware solution may have some effect on the navigation functionality: for example a long key press event can't be accomplished with a rotating device.
- Each softkey has a corresponding textual label on the bottom of the screen.
- The Edit key is the only key that can be used simultaneously with another key press, for example, the combinations where any of the navigation keys are pressed while the Edit key is held down.

See section **Keypad functions** in chapter **Interaction style** for more information about the usage of keys.

Extra keys

Other specific keys can be added to a product to emphasize or facilitate some functions. These extra keys could be used to control applications or hardware such as spoken commands, sound recording, and audio volume control.

3. GRAPHICAL COMPONENTS

Windows and panes

The display layouts are hierarchically organised. The layouts are built using components called *windows* and *panes*.

screen	*Screen* is the topmost display component, corresponding to the entire pixel area of the physical screen.
window	*Window* is a component that has no parent except the screen. Typically a window fills up the entire screen, but there are also smaller (temporary) windows that take up only a part of the screen, leaving other parts of the screen visible around themselves. Each application runs in a window of it's own. Applications can also use other temporary windows.
pane	*Pane* means a sub-component of a window (*sub-window*). A window may contain many panes, and each pane may contain further sub-panes and so on. A bottom level component that cannot have a sub-component, can be called an *element*.

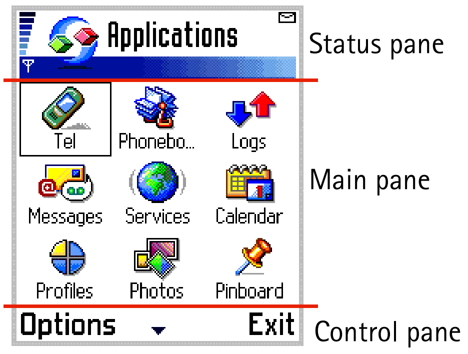


Figure 3-1. Panes

application window	An *application window* is a principal window filling up the entire screen. It is usually not used directly for display, but just as a parent for the various panes. A typical application window is divided into the following panes:

	- **status pane** - **main pane** - **softkey pane** See the dedicated sections for more detailed descriptions on each of these panes.
pop-up window	A *pop-up window* does not fill the entire screen; the pop-up window has a frame, and typically the underlying application is partly visible around the pop-up window. Pop-up windows are typically used in temporary states. Back stepping does not usually lead to a pop-up window. Detailed information on various pop-up windows can be found in section **Pop-up windows**.

Standard panes in application windows

Main pane

Main pane is the principal area of the screen where an application can display its data.

There are a number of standard components for applications to use in the main pane:

a list	There are several standard list types to choose from. (See section **Lists and grids** for a detailed description of list types.)
a grid	There are also several different grid types to choose from.
find pane	Find pane is used together with a list, and it allows the user to search list items alphabetically. (See section **Lists and grids** for more information about the find pane.)
status indicators	The status indicator pane only exists in idle state, immediately below navi pane, and displays status indicators. A few of the indicators appear also in the universal indicator pane (at other times than in idle), others exist only in the status indicator pane.
soft indicators	Soft indicators only exist in idle state. See section **Indicators** for more information on status indicators and soft indicators.

Applications can also use the main pane area to freely draw whatever is needed. In that case, however, the responsibility of the look and feel is entirely on the application's designer. General guidelines for designing application specific main pane layouts can be found elsewhere in this document.

Status pane

Status pane displays status information of the current application and state as well as general information about the device status – for example the signal strength and battery charging. It occupies the top part of the screen.

Status pane may be non-existent in a few applications or situations.

Status pane contains the following sub-panes:

- Title pane
- Context pane
- Navi pane
- Signal pane
- Battery pane / Universal indicator pane

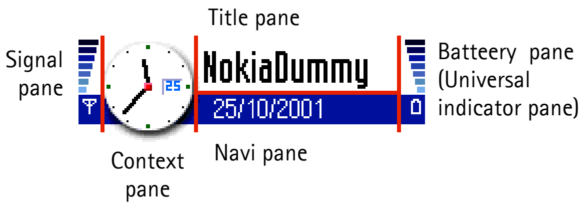


Figure 3-2. Status pane areas.

See the following sections for detailed descriptions about each of these.

Title pane

Title pane displays a context - dependent application title or state name.

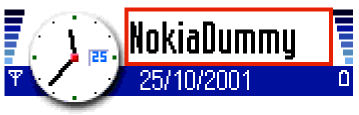


Figure 3-3. Title pane

- Typically, the title text is the descriptive name of the current main pane view.
- In application idle, the title text is typically the application's name.

Context pane

Context pane displays the current application's icon.

NokiaDummy
25/10/2001

Figure 3-4. Context pane.

- The user can recognize the application by the context pane whenever the title pane contains a context - specific text.
- The context pane graphic may contain some dynamic element (for example animation) to inform the user about the application's state. Some applications (e.g. Contacts) may even use the pane in a fully dynamic way to display some data relevant to the application.

Navi pane

The principal use of the navi pane is to display information about the current state and view, and to help the user navigate in the application.

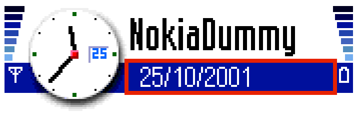


Figure 3-5. Navi pane.

Depending on the context, the navi pane can alternatively contain:

Tabs

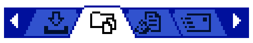


Figure 3-6. Tabs.
Used when there are a few different data views that can be viewed alternatively. There are arrow indicators in both ends of the widget (shown only when there are further tabs hidden in the corresponding direction). Each tab has either a graphic or a text (or both) as a label.
The following tab layouts can be used:
- two tabs
- three tabs
- four tabs
- three long tabs (stacked, so that only one is fully visible at a time)

The currently active tab is highlighted.
More than four tabs can exist simultaneously; the tabs can be scrolled horizontally. However, as a

design guideline, the number of tabs should be kept low (max 6 recommended), and the number should not be dynamic.
(See **Tabs** in section **Interaction style** for a description of their effect on navigation within an application.)

Navigation text

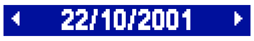


Figure 3-7. Navigation text.

Navigation text is displayed in the navi pane when there are similar items to be browsed by scrolling horizontally, e.g. dates in a calendar. Arrow indicators in both ends of the pane indicate the possibility to scroll.

Indicators

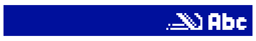


Figure 3-8. Indicators in the navi pane.

In editors the navi pane contains editing indicators. (See the section Indicators for a more detailed description of navi pane indicators.)

Application-specific content

When none of the above content types is suitable, the navi pane content can be designed specifically for an application.

Empty pane

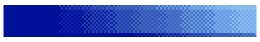


Figure 3-9. Empty navi pane.

The navi pane can be empty. A graphic is provided for this.

Signal pane

Displays the cellular signal strength indicator.

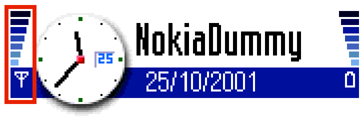


Figure 3-10. Signal pane (left).

The indicator may also contain information about GPRS connection status.

Battery pane / Universal indicator pane

This area of the status pane is used in two different ways.

Battery pane Battery indicator is only visible in the idle state. It displays the remaining energy level of the battery, using a graphical indicator. It also acts as a charging indicator.

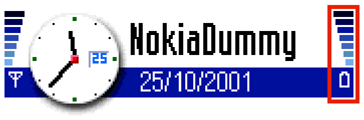


Figure 3-11. Battery pane (right).

Universal indicator pane Used for displaying universal status indicators: the status indicators that need to be visible regardless of the current application. The maximum number of items at a time is 3; items are prioritized according to their importance.

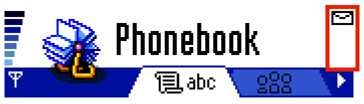


Figure 3-12. Universal indicator pane replaces the battery pane (right).

Control pane

Control pane occupies the bottom part of the screen and displays the labels associated with the two softkeys.

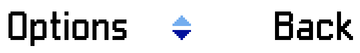


Figure 3-13. Control pane.

When there is a list that can be scrolled, the scrolling indicator arrows appear between the softkey labels. See section **Lists and Grids** for a detailed description of the indicators.

Control pane is also active during options menus, queries and other states using pop-up windows, although it does not reside itself in the pop-up window.

The actual softkeys should be positioned directly beneath the screen so that the association between the keys and their respective labels is evident.

Pop-up windows

Certain UI components are displayed within pop-up windows. A common characteristic for all these components is that they are *temporary states*, which means that they do not remain open if the application for some reason is left in background processing when some other application takes control. Also, backstepping from one state to the previous state never leads into a temporary state; they are skipped.

More information on these components can be found in section **UI components**.

Options menu	The commands and options that are available in the current context can be accessed via the *options menu*. It is displayed as a list in a pop-up window.
Query	A *query* is a component where the software waits for user input. All query components are displayed in pop-up windows. They consist of a prompt (possibly containing a graphical element) and some kind of input component. Various types of queries exist: - *confirmation query*: has either one or two possible input values, given using the softkeys. - *list query*: has a limited number of possible input values, the user selects one from a list. - *multiselection list query*: has a limited number of possible input values, the user can select zero, one or more of them in one pass. - *data query*: contains an input field for a numeric or alphanumeric value that the user can edit.
Note	A *note* is a feedback component that informs the user about the current situation. Notes do not require user input. They contain a text and possibly a graphical element, the layout is similar to a confirmation query, however the softkey labels are typically non-existent.
Soft notification	*Soft notifications* are reminders which inform the user of events that have typically occurred during the user's absence. Soft notifications can only be seen in the idle state, and the user can acknowledge them. There are two types of soft notifications; the layouts resemble those of confirmation queries and list queries: - *single soft notification*: contains one notification. - *grouped soft notification*: contains a number of information items presented as a list, and a title text common to all of the items.
Call window	Incoming calls and outgoing calls are presented in pop-up windows. See the section Call handling for more detailed information on call windows.

Presentation of text

Justification

Default text justification is left. There are only a few exceptions to this, in specific cases, for example:

- Soft indicators in idle state. These are right justified.

It must also be noted that when the display text language is Arabic or some other language following right to left writing direction, many elements are right justified. (See [some specific document] for more information on layout changes for right-to-left languages.)

Truncation

When a text does not fit into the view where it is displayed, it must be truncated. By default, texts are truncated from the end, and three periods (...) are displayed in the end of the truncated text as an indication. Exceptions to the main rule:

- Phone numbers are truncated from the beginning, because the first digits of a phone number are usually considered less important than the rest.

4. INTERACTION STYLE

Keypad functions

This section describes the typical functions for each key. Some application-specific functions may exist in addition to the ones mentioned here.

Key presses

A *key press* is a press and release of a key (down and up).

Typically, the primary action of the key is performed when the key is pressed down, already before the key is released. (There may be exceptions to this rule; see the Edit key section for an example.)

Some functions depend on the length of the key press:

- In a *short key press* the key is held down for less than 0.8 seconds.
- If the key is held down for 0.8 seconds or more, the result is a *long key press*.
- Normally, if the pressed key (in the given context) has functions for both a short and long key press, the short key press action is performed first at the moment when the key is pressed down, and if the key press turns out to be long, then the long key press action is performed. In a few cases - the Applications key and the

Edit key - the interaction is different, causing the action on the key release event.

- Certain keys, possibly in certain contexts only, may perform *key repeat*. Key repeat starts after long key press timeout when the key is continuously being held down, and the associated function is performed according to the key repeat frequency, for example 3 times/second. (The repeat frequency may be user adjustable.) Moving the cursor in an editor is a typical case where key repeat can be used.

- Long key press action and key repeat actions are not defined at the same time; only one of those can occur in the given context.

- The primary key press action should not be conflicting with the long key press action or key repeat action.

With some input hardware, long key presses and key repeat may not be possible. The roller is an example of such an input device. The long key press actions and key repeat actions should be designed so that this does not cause harm: the long key press must never be the only way to do a function.

Keypad tone

A tone can be generated whenever a key event occurs. The tones for short key press (actually a key down event) and long key press are different; a key repeat event uses the long key press tone.

Keypad tone can be adjusted or turned off by the user.

Typical functions of the standard keys

Scroll up / Scroll down	- Move focus one item up/down in lists and grids. - Move cursor one line up/down in editors. - Scroll view one page up/down in viewers.
Scroll left / Scroll right	- Move focus one item left/right in grids. - Move cursor one character left/right in editors. - Move to previous/next view in tabbed views. - Move to previous/next folder view in hierarchical folder structures. - Move to previous/next document or view in certain document viewers. - Adjust sound volume during calls and sound playback. - Changes the value in pop-up field immediately.
Select	- Open the focused item (e.g. document or folder) in selection lists and grids. - Select an option in menus and lists. - Open a context - specific options menu when

	there is no item to open and no option to select (see section **Selection list**). The Select key must not directly activate any such function the user would not expect in the given situation. Therefore, the context specific options menu is offered in states where no selectable items exist. The open/select function should not be mixed with the options menu function within the same state; only one or the other should be used.
Left softkey	- Typically labeled **Options**. Opens the options menu. Other labels and functions: - **Select**. Used in menu lists and grids where further options are not available. Selects the focused item; same as Select key function. - **OK**, **Yes** and other positive replies; used in confirmation queries. - In idle, a shortcut to a specific application. Configurable by the user, labeled according to the application.
Right softkey	- Typically labeled **Back**. Returns to the previous state. (See section **Application handling** for a more detailed description.) Other labels and functions: - **Exit** in application main states. Exits the application and returns to idle. - **Cancel**, interrupts a procedure and returns to the preceding state; used in queries and other temporary states. - **No** and other negative replies; used in confirmation queries. - In idle, a shortcut to a specific application. Configurable by the user, labeled according to the application.
Send	- Answers the incoming call when the phone rings. - Creates an outgoing call when in Contacts and other states where the focus is in a field containing a phone number or name associated with a phone number. - Sends a message; used when in a message editor and To-field contains a valid address.

	During calls: - Puts an active call on hold; makes a held call active; swaps active and held calls if both exist. - Answer a waiting call (if only one call exists already). (See section **Call handling** for more detailed descriptions.) In idle: - Brings up Last dialed calls list for redialing.
End	- Rejects the arriving call. - When an active call exists: ends the active call. - When only a held call exists: ends the held call. - When both active and held calls exist: ends the active call, makes the held call active. - When no calls exist and an application is active: returns to idle (application is not terminated). - Long press: closes down all connections (for example GPRS, data call); however this has no effect on IR and Bluetooth. (See sections **Call handling** and **Application handling** for more detailed descriptions.)
Applications key	- Brings up the Application shell, allowing application launching and swapping. - When within the Application shell, returns to idle. - Long press of Applications key brings up the quick application swapping window, allowing switching between running applications. (See section **Application handling** for a more detailed description.)
Numeric keypad (0-9, *, #)	- Numeric and alphanumeric character entry. - Application-specific shortcuts and other functions.
Clear	- Clears characters when editing text or numbers. - Clears documents or other entities in lists. (These functions always require a confirmation from the user.) Clear is not used for back stepping or exiting; it is only used for deletion.
Edit	- Opens an editing-specific Options menu in editors; the menu contains functions for input mode changing and other editing functions. Refer to Text editing section for contents of the menu. - In editors, can be used together with the

	navigation keys to select (highlight) text, which then enables the copy and cut functions. - In markable lists, using Edit key together with navigation keys allows the user to mark several items of the list, then a function can be executed on all the marked items as one operation. The Edit key is handled in a special way: the primary action (editing options menu) is opened from the key release event, not the key down event as it would usually be. This is to enable the mark/select function where the key is being held down as a modifier key. (See sections **Editing** and **Lists and Grids** for more detailed descriptions on the select and mark functions.)
Power	- Turns power on and off. This requires a long key press. - Opens the Profiles menu for switching active profile.

Navigation

The model of navigation is based on states arranged as hierarchical trees, familiar from existing UI concepts. A few added features bring in new flexibility:

- Tabs
- Applications key and the Application shell
- Direct navigation between sibling folders
- Links to applications and documents; Pinboard

These features are described in the following sections.

Navigating in applications

The traditional hierarchical tree structure forms the basis for navigation. The user can move forward from one node (state) by opening an available item or selecting an option from a menu. Back function (available in the right softkey **Back**) returns to the previous level in the hierarchy. In the initial state of an application (number 1 in the figure below) the Exit function replaces Back in the right softkey; it closes the application.

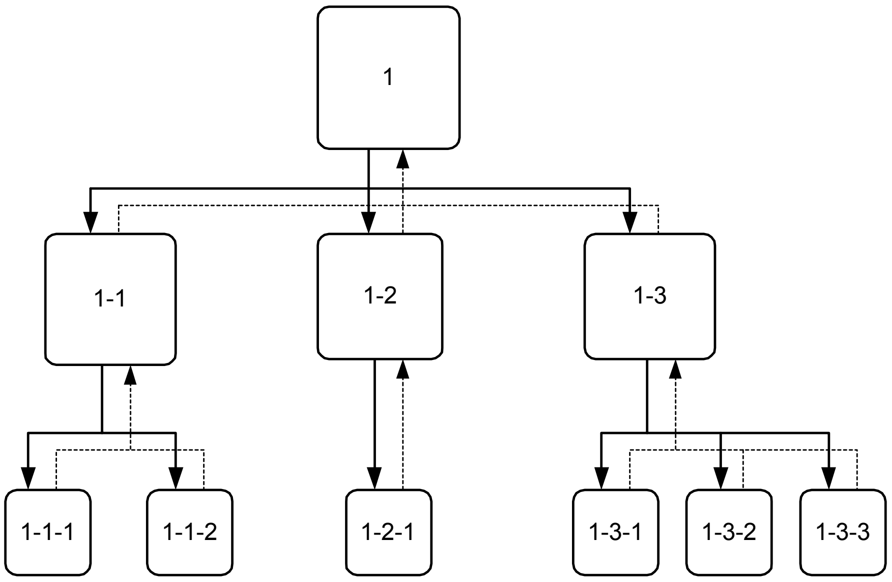


Figure 4–1. An example of a basic state hierarchy in an application. Solid lines indicate moving forward from a state into a sub-state. Dotted lines are backward moves to the previous level.

Navigation using Tabs

Nokia Series 60 UI uses the tab metaphor that allows combining several pages of related information into a single state when all of it would not fit onto a single screen or list. The user can switch the tabs using the left and right scroll keys, as indicated in Navi pane.

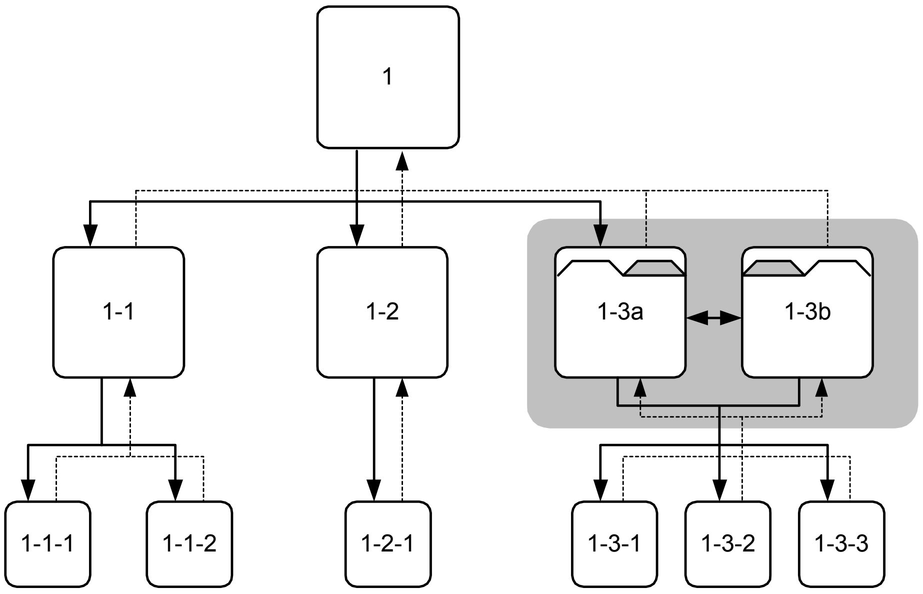


Figure 4–2. In this example, state 1–3 uses two tabs to present its information. The user moves between views 1–3a and 1–3b using the left and right scroll keys. Note that there's no Back function moving between the tab views; Back from both of them leads to state 1.

Tab-controlled views apply the following rules:

- Moving from one tab view to another has no effect on the function of the **Back** softkey in these views: from all of them the back function leads to the same place – the previous level in the application. The tabbed views are in this respect interpreted as one state in the application.
- When a state has tabbed views, one of them is the *default view* that is opened when the user enters the state from the previous level.
- When the user has proceeded from a tabbed view into a deeper hierarchy level, the Back function returns to the same tabbed view where the user came from (which is not necessarily the default view described in the previous bullet).
- The possibilities to go forward from tab views may differ from one view to another (although typically they are similar). This means that one tab view may have other functions available to the user than another tab view in the same state.

Folder hierarchies

When browsing within a folder hierarchy, Series 60 UI offers a direct access from one folder to another ("sibling") folder in the same level. The left and right scroll keys are used to accomplish this. The Navi pane displays the folder number versus the total number of folders in the parent list.

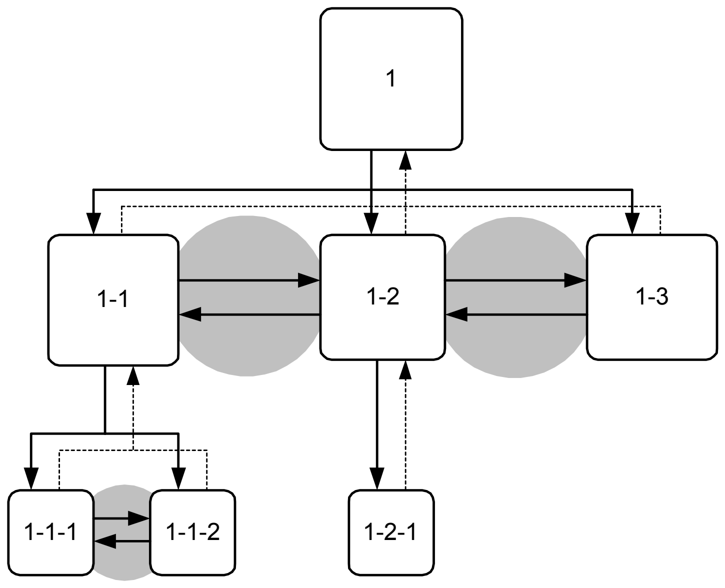


Figure 4-3. In this example, each displayed state is a folder containing a list of items. State one contains three folders (1-1, 1-2, 1-3). When the user has opened one of these, there is a possibility to move directly into the other two folders without first going back to state 1. Folder 1-1 contains two sub-folders and folder 1-2 contains one. There can be individual items in each folder in addition to the folders; those are not visible in the state diagram.

This additional navigation feature can be interpreted as a shortcut between sibling folders. For folder navigation, the basic navigation rules are applied, noticing the following:

- Moving from one folder to another has no effect on the function of the **Back** softkey in these views: from all of them the back function leads to the previous hierarchy level.
- The navigation shortcuts can only be applied when there is no other use for the left and right scroll keys in the state.

Navigation using Links

Links leading from one application (or idle) to another application may exist. Links are one-way shortcuts: there is no direct path back to the state where the link was started; instead, the navigation inside the linked application functions as if the user had manually activated the other application and navigated to the target state.

For more information on links, see the Application handling section.

5. UI COMPONENTS

Lists and grids

Vertical *lists* are used extensively in most applications. Two dimensional *grids* are less frequently used, but have obvious advantages in some situations. In lists and grids, the user can move the focus from one item to another using the navigation keys. This is called *browsing* or *scrolling*.

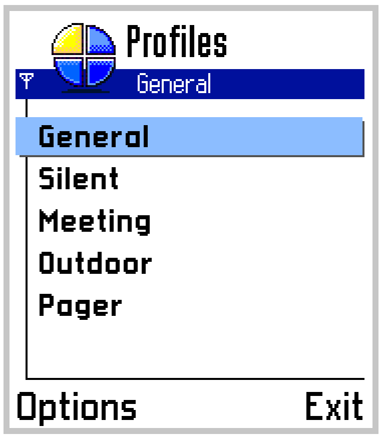
- Vertical browsing is preferred over horizontal browsing in general; the keypad solutions should take this into account.

Highlighting

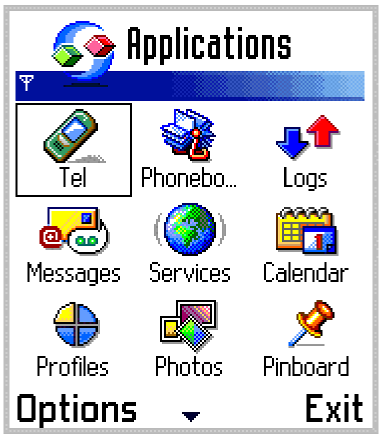
When a list or grid is in use, one item on it is always in focus. The item in focus is indicated by a graphical means called *highlighting*; the item is said to be *highlighted*.

The appearance of highlighting on a list item is a coloured (or gray) bar which completely occupies the item in focus. The item text and graphics are displayed on the bar.

Grid item highlighting is a frame over the item in focus.



a.



b.

Figure 5-1 List highlighting (a) and grid highlighting (b).

Empty lists and grids

If there are no items to be displayed in a list or grid, the pane contains a text informing the user about the empty list.

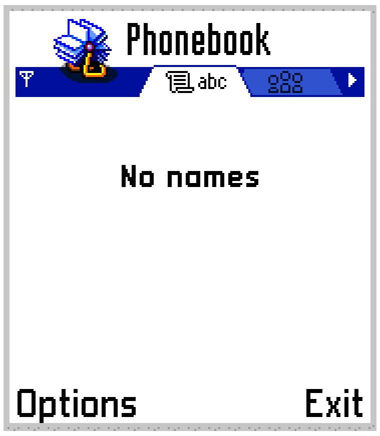


Figure 5-2. Empty list.

Depending on the case, it may be justified to prompt the user to create the first item for an empty list.

List browsing

In a list, browsing is possible in two directions: pressing scroll up key moves the focus one step up (backward), and pressing scroll down moves the focus one step down (forward).

When browsing, the item in focus must always be visible. The detailed rules of moving the focus are as follows:

- If the choice item that is becoming focused is already fully visible, all the items stay in their current positions, and highlight is moved from the old item to the new item.

- If the new choice item is not visible, all items are moved in the view to the appropriate direction so that the new item becomes fully visible. For example, if focus is moving down and the new item is currently below the bottom edge of the view, the items are moved up.

- When moving the choice items in the view, they are only moved the minimum amount necessary. For example, when moving items up to get the next one under the bottom edge visible, the item moves to the lowest allowed position in the view.

By default, a list is a *queue*. This means that it is not allowed to browse forward from the last item or browse backward from the first item. If the user attempts this the list does not react; there is no feedback except the normal keypad tone.

It is also possible to specify the list to be a *loop*, which means that it is possible to browse forward from the last choice item – this step leads to the first item in the list – and vice versa.

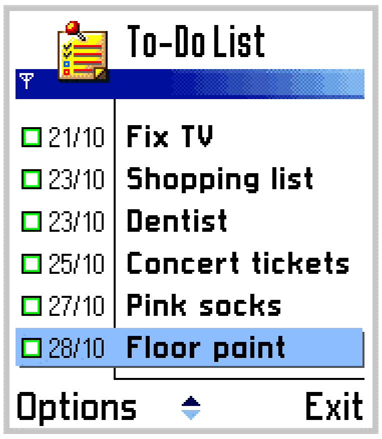
The display of a looping list jumps from the last item to the first item in a non-continuous way, so that the first item is shown on top of the view, just as it would appear if scrolling backward through the whole list. (This is due to EPOC implementation and is different from traditional Nokia style where the loops appear continuous, with no jump in the looping point.)

The scrolling as specified here is 'traditional style' where the highlight moves until the lower or upper edge of the list requires the content to scroll. Other, potentially better methods could replace this without consequences to other features.

Scrolling indicator for lists

Lists have no scroll bar. There is, however, a scrolling indicator component which indicates the relative position of the item in focus within the list.

The scrolling indicator is only displayed when all items in the list can't fit on the display simultaneously.



☐ 21/10	Fix TV
☐ 23/10	Shopping list
☐ 23/10	Dentist
☐ 25/10	Concert tickets
☐ 27/10	Pink socks
☐ 28/10	Floor paint

Figure 5-3. Scrolling indicator in the control pane. The downward arrow is dimmed because the focus is near the end of the list.

The indicator is situated in the control pane, and it consists of two arrow images, one pointing up and the other one down. The colours of the arrows depend on the position of the focus, so that towards the list's beginning, the upward arrow image becomes less noticeable and eventually (when on the first item) disappears, and vice versa. So clearly visible arrows always point in the direction which has the larger number of items in the list.

The scrolling indicator is displayed with all list types, with main pane lists as well as pop-up window lists.

The scrolling indicator functions as specified above also when the list is a loop – there is a distinctive change in the indicator at the moment the list loops.

Order of items and browsing in grids

In a grid the available items are in a rectangular arrangement of cells and browsing is possible in four directions. In addition to up and down functions, the user can press scroll right to move the focus one step right, or press scroll left to move the focus one step left.

The number of items can be larger than what fits in the view so the grid items may scroll in the view when browsing.

- The preferred scrolling dimension is vertical; this means that when more items are added, the number of items in a grid grows downward line by line, but not outside the window to the left or right.
- A grid should not be scrollable in both dimensions; it is acceptable only in cases where the grid has a natural geometry that can't be changed. A calendar's month view is an example of this kind of geometry (but even in that case it is better to fit the whole month on screen rather than make it scrollable in both dimensions).
- The default filling order of choice items in a grid is first left-to-right, then top-to-bottom.

1	2	3
4	5	6
7	8	9

Figure 5-4. Default grid filling order.

It may happen that a grid is not filled completely. Depending on the application, the grid can be auto-filling (cells moved within the grid so that empty cells in the middle get filled), in which case there can only be empty cells on the rightmost part of the last line. Other applications may allow empty cells anywhere, so that the grid can be sparse.

The browsing in grids that scroll vertically resembles traditional scrolling in text editors, based on the idea that the user can always move to the correct row first and then move within the row to the correct item. The following rules are applied:

- Empty cells are skipped: the focus is never on an empty cell.

  An exception to this occurs when the user is moving items around in a grid; in that situation all cells are accessible.

- When browsing down or up, the focus is moved to the adjacent cell directly below or above the current cell, if that cell is filled. In case it is empty, the nearest cell on the same row gets the focus. If all cells on the row are empty, the search continues on the next row in the same direction, and so on until a filled cell is found.

- When browsing right, the focus moves to the following filled cell on the same row. If there are no filled cells in that direction on the row, the search continues from the beginning of the next row, and so on until a filled cell is found.

- Browsing left moves the focus to the previous filled cell on the same row, or continues searching from the end of the previous row. Using only the right or left scroll key, the user can thus go through every item in the grid, regardless of the distribution of items in it.

- The grid is scrolled (moved within the view) only when the item that is becoming focused is not fully visible already.

- By default, grids do not loop vertically from the end to the beginning or vice versa.

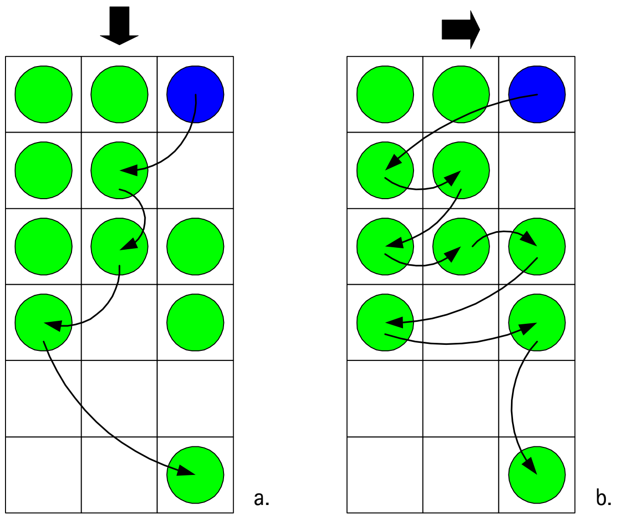


Figure 5-5. Examples of moving the focus in a grid, starting from top right:
a. Only Scroll down commands used.
b. Only Scroll right commands used.

Horizontally scrolling grids may be used when the application design requires it. For them, the browsing rules are applied by exchanging the horizontal and vertical browsing rules. The example figures presented above are correct if turned 90 degrees counter-clockwise.

Scrolling indicator for grids

The same scrolling indicator as with lists is applied to vertically scrolling grids. The indicator refers to the row where the focus is located; left-right movement within the row has no effect on the indicator.

For horizontally scrolling grids, the indicator appears as rotated 90 degrees, and refers to the current column.

List types

Based on the functionality, the following list categories can be identified:

- Menu list
- Selection list
- Markable list
- Multi-selection list
- Setting list
- Form

Lists belonging to one category may have different graphical appearances. See section **List layouts** for information about different-looking list items.

Menu list

Menu lists are used to select one item from a list and do nothing else; the Options command is not available when a menu list is being browsed. (Options menu itself is a menu list.)

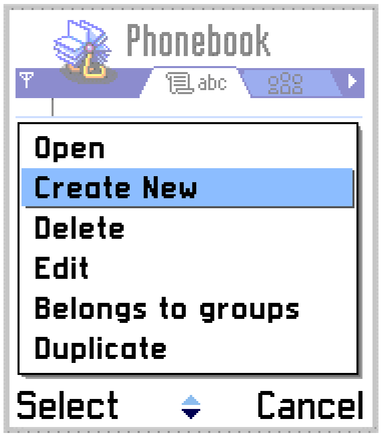
If a high-priority event like an incoming call happens when a menu list is open, the list is cancelled and the new event takes control. These lists are often displayed inside a pop-up window.

Default keypad functions during a menu list:

Scroll up / down	move focus the list
Scroll left / right	ignored (unless there is a submenu; see section **Options menu**)
Select key	select the item, do associated function

Left softkey (Select)	select the item, do associated function
Right softkey (Cancel)	dismiss the menu; return to the state preceding the opening of menu
Send key, Edit key	ignored
numeric keypad	ignored
other keys	dismiss the menu and do the default action of the key

Examples of components using menu lists are options menu and list query.



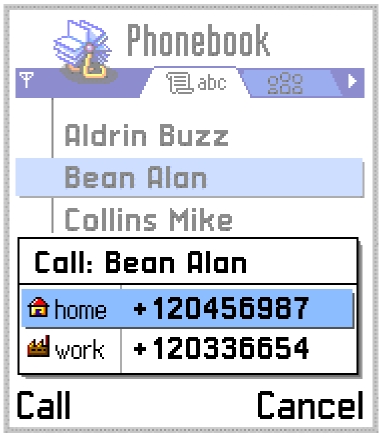


Figure 5-6. Menu lists: Options menu (left) and list query.

Selection list

A *selection list* is a common means of displaying and accessing data in applications. When there is a selection list displayed the application is typically in a permanent state, which means the user can leave the application, open another application and later return to the same state. Selection lists are displayed in the main pane.

Typically, the user can open items on a selection list, leading into another, more detailed view of the item within the application. In addition to browsing and selecting items, other functions are available in the options menu (see section **Options menu**).

Usage of the **Select key** in selection lists deserves special attention. Depending on the case, it can do the following actions:

- Select the item in focus. This should happen whenever it is assumed that the user is clear about what happens. Selecting can mean:
  - opening an item like a folder, or a date in a calendar, leading to a detailed view
  - executing a command when the focused item is a command

- Open a context-specific options menu. This should only happen when the user cannot be assumed to know what happens if the Select key is pressed. The menu should contain only high-priority options associated with the item in focus, not general items like Settings or Help.

The two types of Select key actions should not be mixed within one list; one or the other should happen for every item in the list.

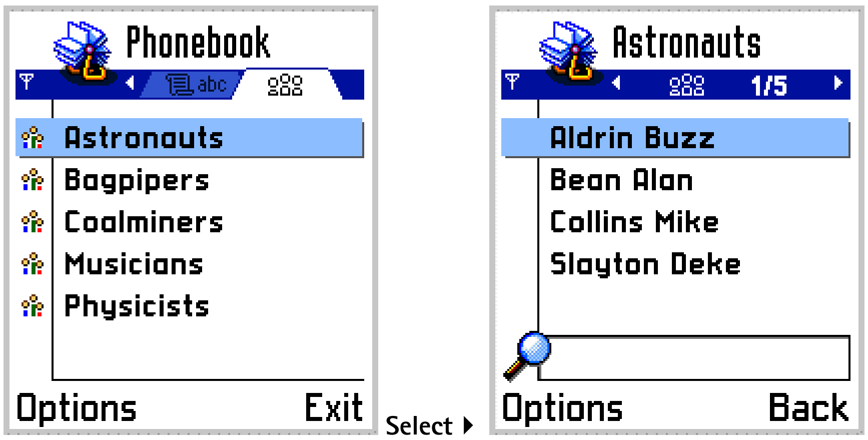


Figure 5-7. Select action opens a view.

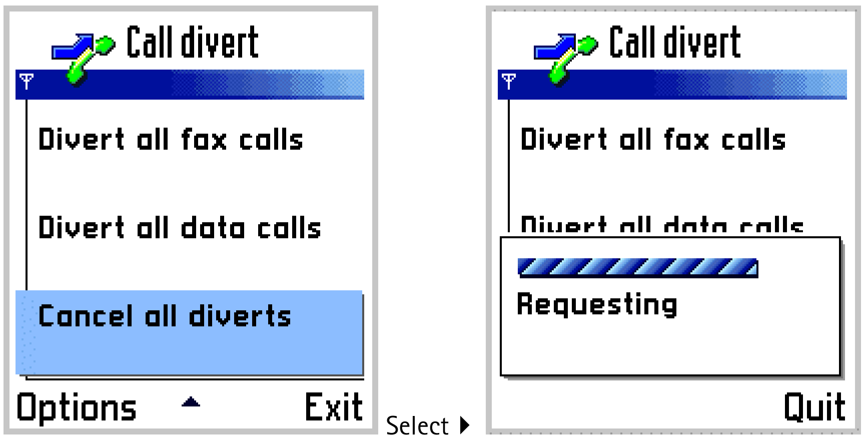


Figure 5-8. Select action does a command.

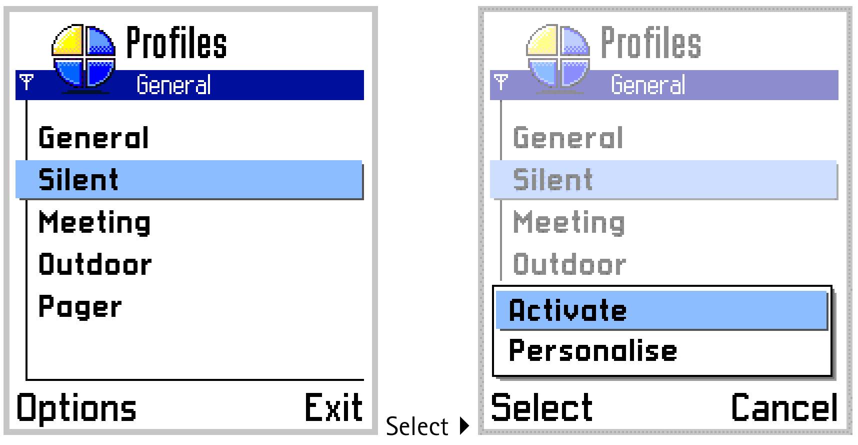


Figure 5-9. Context-specific Options menu opened from Select key.

Keypad functions for selection lists:

Scroll up / down	move focus in the list
Scroll left / right	may be ignored, or may have navigation functions associated with them (see section **Navigation**)
Select key	select the item; see discussion above
Left softkey (Options)	open the options menu (see section **Options menu**)
Right softkey (Back; Exit)	back stepping (see section **Navigation**)
Clear	deletes the item if it can be deleted (confirmation from the user required); otherwise ignored
Edit	ignored, or marking function if the list is markable (see section **Markable list**)
numeric keypad	may be ignored, or may have specific functions within the state
other keys	do the default action of the key

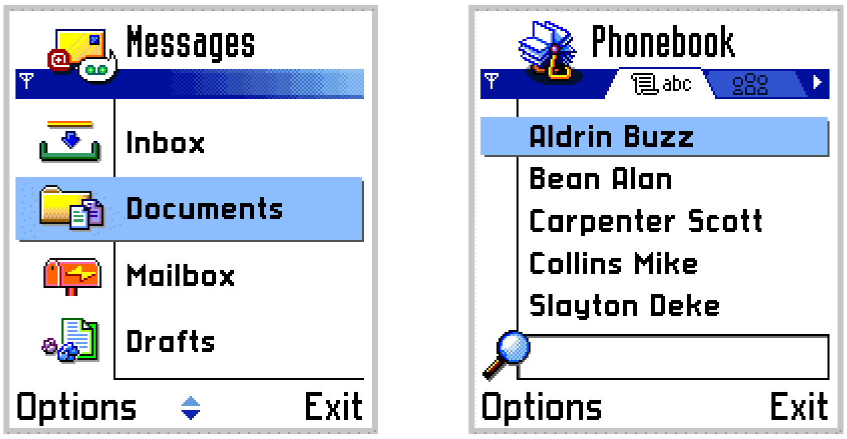


Figure 5-10. Selection lists.

Markable list

A *markable list* is a selection list with the added *marking* feature. The user can *mark* any number of items on the list while browsing it, and then execute a single command, which is applied to all the marked items. This is analogous to the multiple-item highlight feature used in computer GUIs.

The marking feature will typically be applied to lists the user manages, containing a large number of items that may be for example sent, moved or deleted. By marking items first and then selecting a command the user can do some operations more quickly and with less key presses than doing the command separately for each of the items.

Marked items are indicated graphically.

The exact style of mark indication is a graphical design issue. This version of the Style guide uses check marks.

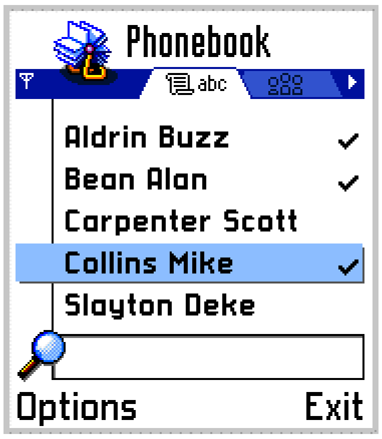


Figure 5-11. A markable list. Marked items are indicated graphically on the list.

The mark and unmark functions are available in the Options menu of the markable list. Alternatively, or as a shortcut, the user can keep the **Edit** key pressed while using the navigation and Select keys in the following way:

- Pressing the Select key while holding Edit marks the current item. This is a toggling function, so pressing Edit-Select on a marked item unmarks the item.
- Pressing a scroll key (up or down) while holding Edit marks both the current item and the one onto which the focus moves. If the user keeps holding the Edit and scrolls further in the same direction, all the scrolled items become marked; to unmark the items in reverse order the user can scroll into the opposite direction while keeping Edit down.
- Items can be unmarked by Edit-scrolling: if the user starts holding Edit when on a marked item, and then scrolls, all scrolled items become unmarked.
- Several marking actions can be done subsequently. The user can mark an item, then release Edit, browse and move the focus onto some other item on the list, and then mark that item. The first item remains marked, and the ones between the two do not become marked.
- All items become unmarked when the user exits the list, for example by back stepping. Items remain marked if the user opens and cancels the options menu, or swaps applications.
- Pressing and releasing the Edit key alone does not cause any action.
- If the user presses the Select key (without Edit) when there are marked items on the list, then the context-specific options menu is opened, containing only the functions that apply to multiple items.

A markable list functions exactly like a normal selection list, except for the marking feature.

The user may access the options menu to do functions on all marked items at once. Only the functions that are applicable to multiple items simultaneously appear in the options. Appropriate error handling must be designed for functions that don't apply to some or all of the marked items.

- When executing a function, if any of the items are marked, all the marked items are affected by the function. If the focus is on an item that is not marked, the function does not affect that item.
- After the selected function is successfully done, all items are unmarked. In an error case, when the function cannot be applied, the marks should remain in place.

The options menu includes marking and unmarking functions in a submenu so that any user can find the feature. The submenu has also **Mark all** and **Unmark all** options.

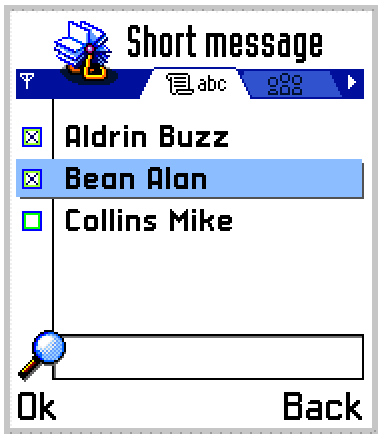
For other keypad actions than the ones described above, refer to the **Selection list** section.

Multiselection list

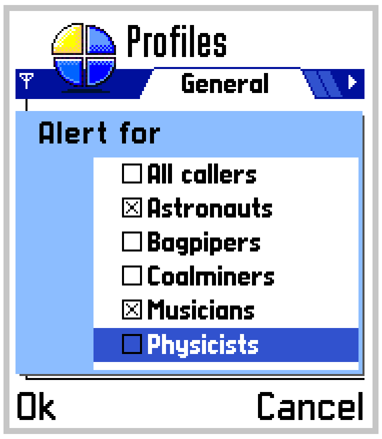
Multiselection list is used when we want to emphasize that it is possible to select several items from a list at the same time. Typically, there is an operation going on that expects one or more items as input. An example of this is when the user is creating a group, and a list of names is offered as a multiselection list.

In a multiselection list, the user can browse the items and check and uncheck any number of them. The state of each item is indicated in a checkbox adjacent to the item. When the user accepts the list, information about the marked items is passed to the application.

Items are checked and unchecked using the Select key, and the list is accepted with the left softkey **Done**. Note that unlike in a markable list, the **Options** softkey is not available – one can only check and uncheck items, and then accept or cancel the list.



☒ Aldrin Buzz
☒ Bean Alan
☐ Collins Mike



Alert for
☐ All callers
☒ Astronauts
☐ Bagpipers
☐ Coalminers
☒ Musicians
☐ Physicists

Figure 5-12. Multiselection lists: in main pane (left) and in a setting editor.

Keypad functions for multiselection lists:

Scroll up / down	move focus in the list
Scroll left / right	ignored (can be used to control tabs)
Select key	check / uncheck the current item; toggle
Left softkey (Done)	accept the list, pass the selections to the application
Right softkey (Cancel)	cancel the list, return to previous state
Clear, Edit, Send	ignored
numeric keypad	ignored

other keys	cancel the list, and then do the default action of the key

Setting lists

Setting list is a specific kind of selection list containing setting items which the user can adjust. Setting lists are displayed in the main pane.

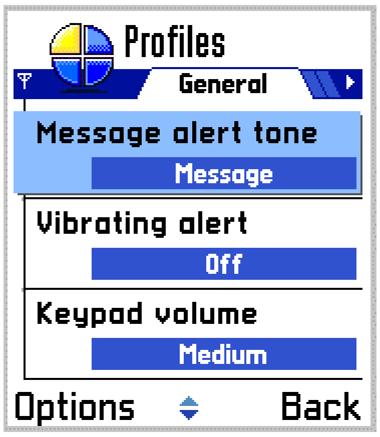

Profiles
General
Message alert tone
Message
Vibrating alert
Off
Keypad volume
Medium
Options
Back

Figure 5-13. A setting list.

A setting item can be adjusted by selecting it in the same way as selection list items are selected in general, by pressing the Select key, or choosing the Change command in the options menu. The main pane then displays the setting item editor where the value can be changed.

There are several setting item types available. They look the same in the setting list: each item displays an attribute text (title of the setting) on one line and the current value on another line within the item. The adjusting and editing functions differ between setting item types.

pop-up setting

Pop-up setting allows the user to choose one value from a pre-defined list. The setting editor displays the available values in a menu list.

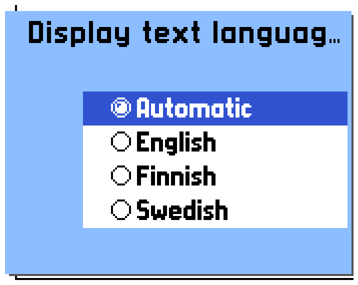

Display text languag...
◉ Automatic
○ English
○ Finnish
○ Swedish

Figure 5-14. Pop-up setting.

When opening a pop-up setting, the currently selected option is highlighted, and it must be visible. A pop-up setting may also allow the user to enter a new textual value in addition to the pre-defined values. Then the last option is named **Other**, and selecting it opens a data query for entering the new value.

multiselection list setting

Multiselection list setting allows the user to choose several simultaneous values from a pre-defined list. The setting editor displays the available values as a multi-selection list. The setting item displays the number of selected items versus all items in the value field; for example: 3/8.

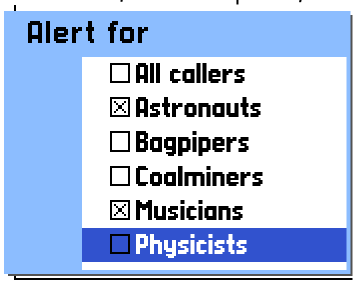
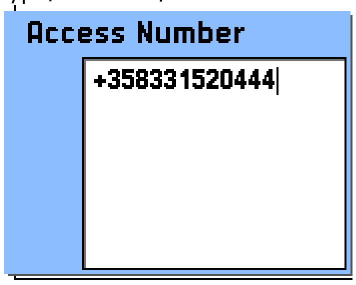

Alert for
- ☐ All callers
- ☒ Astronauts
- ☐ Bagpipers
- ☐ Coalminers
- ☒ Musicians
- ☐ Physicists

Figure 5-15. Multiselection setting.

text setting

The value of a text setting item is an alphanumeric or numeric string. The editor can be of some specific type, like date/time editor.

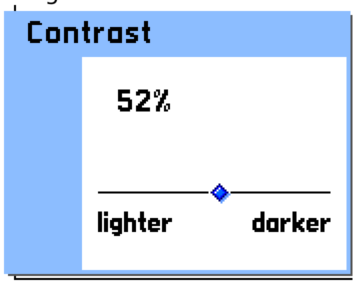

Access Number

+358331520444

Figure 5-16. Text setting.

slider setting

With slider the user can 'adjust the value of' by sliding a marker. The value of a slider is adjusted using the Scroll left and Scroll right keys.


Contrast

52%

lighter darker

Figure 5-17. Slider setting.

During a setting editor state, the keypad functions are:

Scroll up / down	pop-up, multiselection: browse the list text: move cursor slider: ignored
Scroll left / right	pop-up: ignored multiselection: ignored text: move cursor slider: adjust (key repeat event may move the slider by several steps)
Select key	all except multiselection: accept the value, return to setting list multiselection: toggle check/uncheck
Left softkey (OK)	accept the current item or value, return
Right softkey (Cancel)	cancel the setting editor, return
Clear	pop-up, multiselection: ignored text: delete characters slider: ignored
Edit	pop-up, multiselection: ignored text: editing mode menu slider: ignored
numeric keypad	pop-up, multiselection : ignored text: input functions slider: ignored; if the value is numeric it may be adjustable using the numeric keys.
other keys	cancel the setting editor, then do the default action of the key

During the setting editor state, the navi pane is empty, or in case of the text editor, contains editing indicators.

Further guidelines:

- Typically, the access to a setting list is via the Options menu. (See section Options menu.)
- Setting lists can only contain setting items, not other types of items mixed with them. (In case the settings are arranged in a hierarchical structure, both setting items and 'setting folders' may exist in one list. See section **Settings** in the **Guidelines** chapter.)
- All the setting item types can co-exist in the same setting list.

- If pop-up setting has only two available values (like On and Off) and no special procedure is needed when switching from one value to the other, then the setting editor (list) need not be displayed when the user presses the Select key; the item's value is changed immediately. However, if the user opens the setting item via the options menu, or if an additional procedure is required (for example a password) before the item's value can be changed, the menu list is opened normally. Note that scroll left and scroll right can also be used to change the value without opening the list.

Forms

Form is a specific kind of selection list, where all items (*fields*) have some editable content.

A form can be in *view state* or *edit state*. The item layouts and functionality are different in these states:

- In view state, the items are not editable. The form functions and looks just like a similar selection list. Items can be selected to perform an application-specific function.

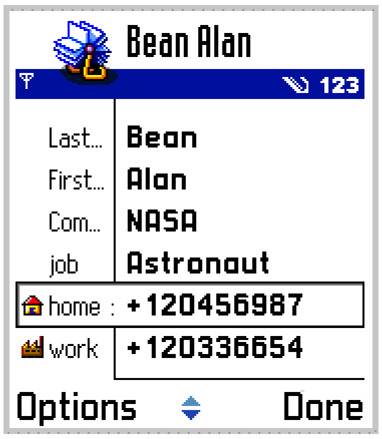
- In edit state, the user can edit all the fields. Forms can contain text fields (alphanumeric or numeric content), pop-up fields and sliders.

The user can switch from view state to edit states using the Edit command in the Options menu.

In edit state, the contents of the form can be accepted using the right softkey, labeled as Done. The form returns then into view state.

Always-editable forms

In case a view state is not useful, the form can be specified as edit-state only. Then the user can edit the fields right away when entering the form, and accepting the form returns into a state outside the form instead of the view state.


Bean Alan

123

Last...	Bean
First...	Alan
Com...	NASA
job	Astronaut
home :	+120456987
work	+120336654

Figure 5-18. A form in edit state.

Forms without the Options softkey
In case the form does not need any context-specific functions in the Options menu, the softkey interface can be the same as in queries: left softkey is Done and the right softkey is Cancel. Done accepts the contents and returns, wherea the Cancel function discards all changes in the form and returns.

Form items
Empty items (that contain no data) can be hidden in the form's view state. However, this is not a requirement; forms can be designed either way, whichever is better for the given application.

Unlike ordinary list items, the form items may have different sizes in the layout but in edit state only. A long data field may occupy more than one line in edit state, but in view state it is truncated to the first line.

The user may be able to add and remove form items. This is done with commands in options menu.

Form items always have a label. The label has a text part, or a text and a graphical part; however all items in one form must have the same column layout. (See section List layouts for detailed information about layouts.)

The following item types can be used in a form:

- Text field (alphanumeric or numeric content)
- Pop-up field
- Slider

Any combination of these types is possible within one form.

When the form is in edit state, the user can move the focus up and down like in a list. The highlight in edit state is different from the highlight in view state, acting as a visual cue. A cursor blinks in a text field that is in focus. There is no need to save each field separately; the user can browse and modify the fields in any order and then accept all modifications. During browsing a form in edit state, the keypad functions are as follows:

Scroll up / down	Move focus between form items (when in a text field move the cursor within an item line by line).
Scroll left / right	on a pop-up field: change value without opening list on a text field: move cursor character by character on a slider: adjust slider value
Select key	on a pop-up field: open list on a text field: move to next field on a slider: move to next field

Left softkey (Options)	Options menu. (In a form without options menu, left softkey is **Done**.)
Right softkey (Done)	Accept the contents and return to previous state. (In a form without options menu, right softkey is **Cancel**.)
Clear	pop-up: ignored text: delete characters slider: ignored
Edit	pop-up: ignored text: editing mode menu; select text slider: ignored
numeric keypad	pop-up: ignored text: input slider: ignored
other keys	default action of the key

The field types are described in the following paragraphs:

text field

Text field contains some type of numeric or alphanumeric data. It can be edited directly, using the usual editing functions, when the form is in editing state. The text field can expand to more than one line if necessary.
In view state a text field looks identical to a corresponding list item.

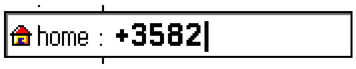

home : +3582

Figure 5-19. Text field.

pop-up field

Pop-up field offers a possibility to choose one value from a pre-defined list.
In view state a pop-up field looks identical to a list item; the text is the current value of the field.
In edit state it has a distinct look that identifies the field as a pop-up list.
To edit the item in edit state, the user can press the Select key; it opens into a menu list that contains the available values. The highlight is on the current value. When the list is open, the softkeys are OK and Cancel, as usual with a menu list. Both softkeys return to the edit state in the form.

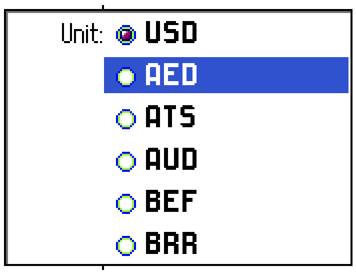


Figure 5-20. Pop-up field.

A pop-up field may also allow the user to enter a textual value in addition to the pre-defined values. Then the last option is named for example **Other**, and selecting it opens a data query.

slider

With slider the user can adjust a numeric value (although it is not necessary to present the actual value to the user as a number).
In view state, the item is presented as a textual item.
In edit state, the value of a slider is immediately adjustable using the Scroll left and right keys.

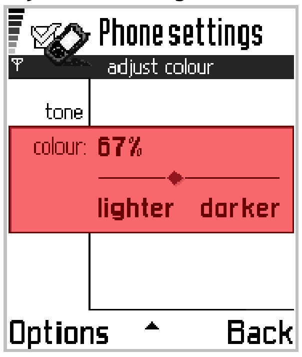


Figure 5-21. Slider field.

List layouts

List items can in general be more complex (contain more elements) than grid items. Certain layout rules apply to all lists:

- All items in a list have equal height on screen. (Forms do not follow this rule in edit state; see section **Forms**.)
- The column structure of all items in a list must be similar. It is not possible to combine e.g. single-column items to a three-column item list. (But it is possible to use some different item types having the same general appearance.) See the following section about columns.

- Partial items are not visible: when the list/grid pane area does not exactly correspond to an integer number of items, the remaining area outside the last fully visible item appears empty, displaying the background of the particular pane.

Column structure of lists

For visual consistency, the standard list layouts are built around a structure of three virtual columns. The column borders are aligned with the sides of the context pane.

The width of list items can be divided in three sections (columns A, B and C), starting from left. All three columns need not be used separately in a list layout: combinations AB, BC or ABC are possible. However, all items within a list must use the same column layout. Additional indicator icons can be displayed in the right edge of column C, as seen in the example b) below. The area for these indicators is not really a column in the same sense as the other three, as it can be used dynamically, item by item.

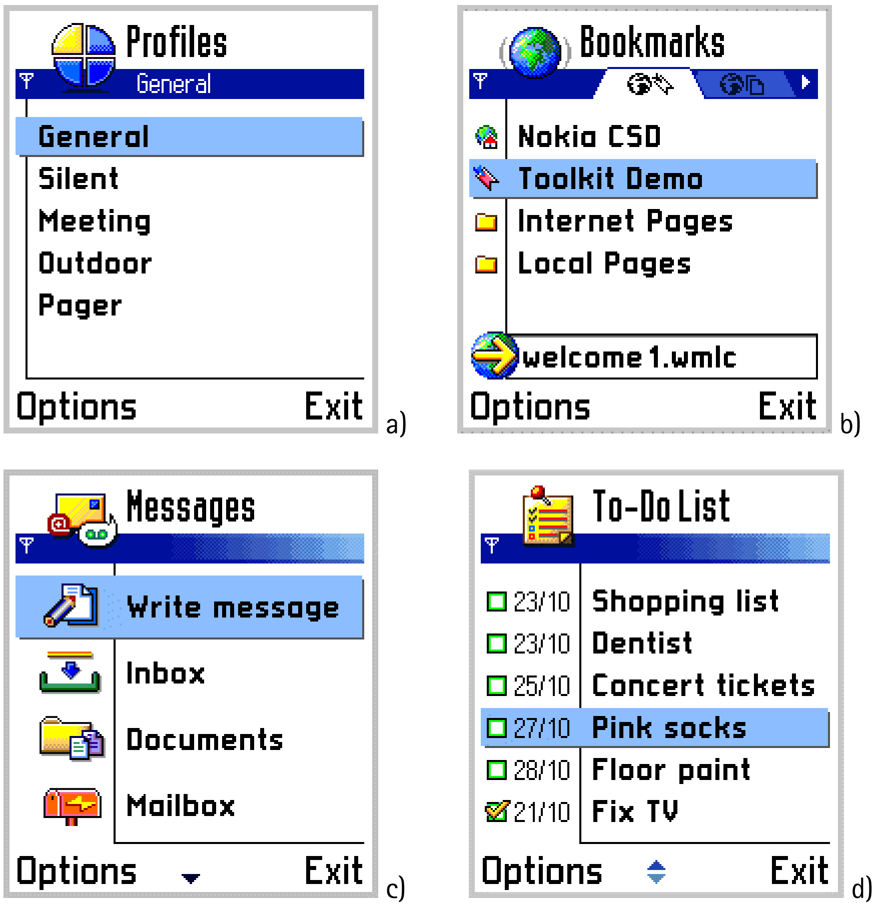


Figure 5-22. Different column arrangements:
a) All columns used for text item.
b) Column A contains icon, columns B&C combined for text.
c) Columns A&B combined for large icon, column C contains text.
d) Column A: icon; column B: label; column C: text.

Standard elements in list items, associated with columns, are:

column A	- small graphic (icon) - item number (see section **Numbered items**)
column B	- heading (title or attribute of the item)
column AB	- heading (title or attribute of the item) - large graphic (e.g. icon or image thumbnail)
column C/BC/ABC	- main text of the item

List item types

The appearance of list items can be chosen from the following types. The examples are from lists displayed in main pane; for most item types a similar component for use in pop-up windows do exist.

single-line item

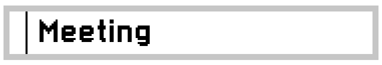


Figure 5-23.
main text only (columns ABC)
usage:
- menu lists
- selection lists, markable lists

There is a corresponding component for pop-up windows, without the line on the left side.

single-line item with heading

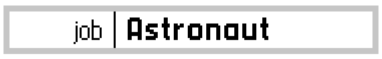


Figure 5-24.
heading text (AB), main text (C)
usage:
- menu lists
- selection lists, markable lists

There is a corresponding component for pop-up windows.

single-line item with graphic

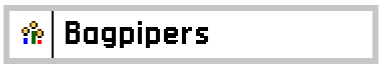


Figure 5-25.
small graphic (A), main text (BC)
usage:
- menu lists
- selection lists, markable lists
- multiselection lists

There is a corresponding component for pop-up windows.

single-line item with graphic and heading

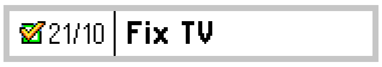


Figure 5-26.
small graphic (A), heading text (B), main text (C)
usage:
- menu lists
- selection lists, markable lists
- multiselection lists

There is a corresponding component for pop-up windows.

single-line item with large graphic

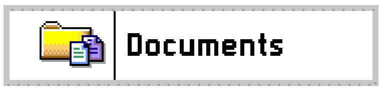


Figure 5-27.
large graphic (AB), main text (C)
usage:
- menu lists
- selection lists, markable lists

two-line item

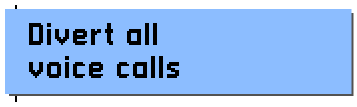


Figure 5-28.
main text (ABC)
usage:
- menu lists
- selection lists

This layout has one text item that can extend to two lines.

double item

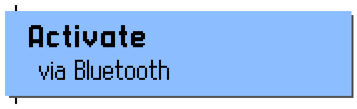


Figure 5-29.
primary text, secondary text (ABC)
usage:
- menu lists
- selection lists

This layout has two text lines (primary text on top, secondary text below). The second line may be empty.
There is a corresponding component for pop-up windows.

double item with graphic

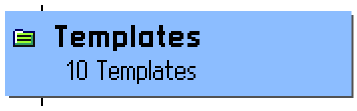
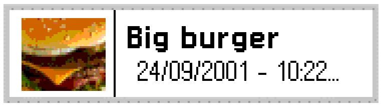


Figure 5-30.

primary text, secondary text (ABC)
usage:
- menu lists
- selection lists

double item with large graphic



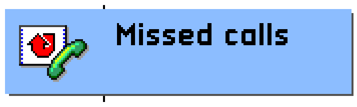


Figure 5-31.
large graphic (AB), primary text, secondary text (C)
usage:
- menu lists
- selection lists

Like a double item, but with the graphic added on the left side. Second line may be empty.
There is a corresponding component for pop-up windows.

double item style 2

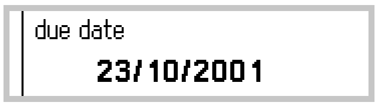


Figure 5-32.
heading text (ABC), main text (BC)
usage:
- forms
- menu lists
- selection lists

This layout has emphasis on the lower line, as opposed to the other double item style where the upper line is emphasized.

double item style 2 with graphic

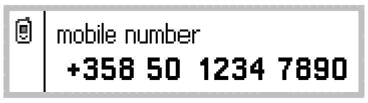


Figure 5-33.
graphic (A)
heading text, main text (BC)
usage:
- menu lists
- selection lists

Similar to the previous layout, graphic added.

setting item

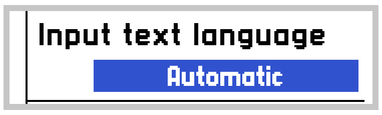
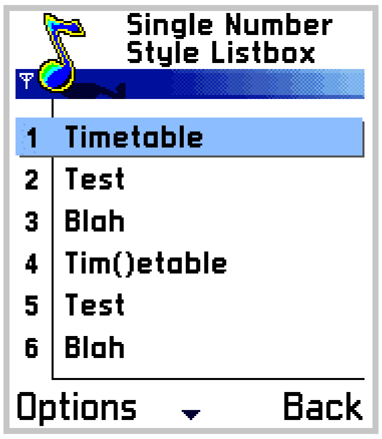

Input text language
Automatic

Figure 5-34.
attribute text (ABC), value text (C)
usage:
- setting lists
A two-line layout: attribute text is on top line, value text (or graphic) on bottom line in a box. The value box may be omitted in order to create a regular selection item within a setting list.

Numbered items

Instead of small graphic, the A column (where used separately) may contain a number. This can be used to indicate item numbers in lists where necessary.


Single Number Style Listbox

1 Timetable
2 Test
3 Blah
4 Tim()etable
5 Test
6 Blah

Figure 5-35. A numbered list.

- Numbered items should be used only in lists where numbers are meaningful and give some added value. There is no specific functionality (such as shortcuts) that all numbered lists would have.

Item type combinations

A list can only be composed of items of the same type. However, it is possible to use some item types for different purposes. An example is a setting list that contains an item for accessing a sub-list of settings. In this item, the value box is omitted so that the item looks like a regular selection item, and selecting it will open another list. Similar techniques are possible with other double item types, too.

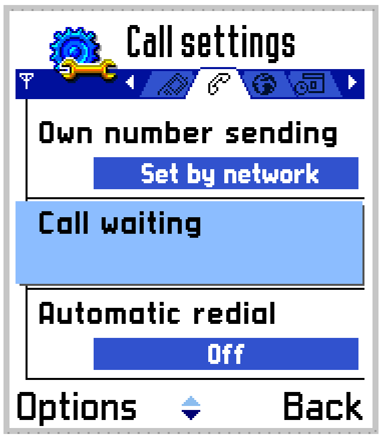


Figure 5-36. A setting list containing a non-setting item (Call waiting) to access another view.

Grid types

Grids are in many ways analogous to lists. However, there are some things worth noticing:

- In grids, the Scroll left and Scroll right keys are always used for moving the focus; they can't be used in any other way that may be possible with lists.
- Grid layouts are not standardized as much as lists are, the layouts must be designed case by case for the applications. Typically, grid items occupy less screen space than list items. This results in grid items having fewer elements than list items. A grid item may in general have one text, or one graphic, or a text and a graphic.

The following grid types can be used, and they are analogous to corresponding list types:

menu grid	for selecting one item; no options menu
selection grid	permanent state; can be left pending, options menu is available
markable grid	a selection grid with the marking function

There are no grid types corresponding to a multiselection list, a setting list or a form.

Find pane

Find pane is a component intended to help find items in a list. The find pane is situated in the bottom part of the main pane.

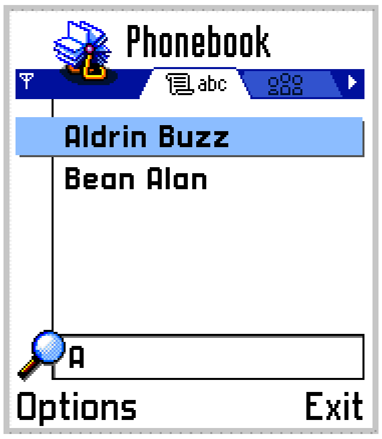


Figure 5-37. A find pane within a selection list of names in Phonebook.

The standard functionality is as follows:

- Characters typed from the numeric keypad appear in the end of the string in the find pane.
- There is no cursor, so the user can only add and remove characters in the end.
- The find pane may be hidden until the user types in a character.
- Whenever the find string changes, the list in the main pane is filtered, and only the items matching the string are displayed. The user can browse the list normally using Scroll up and Scroll down keys.

Options menu

The *Options menu* is a tool that offers the user a set of possible functions in the current context. The options menu is opened by pressing the left softkey labeled **Options**.

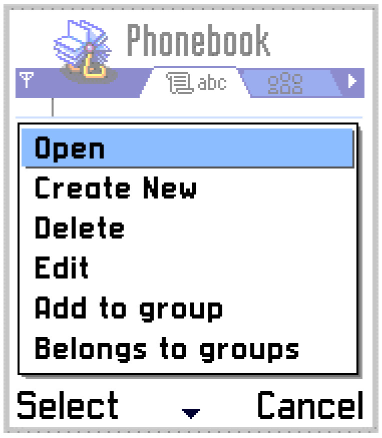


Figure 5-38. Options menu.

The options menu is a menu list displayed in a pop-up window. Selecting an item is done pressing either the left softkey (OK) or the Select key. The user must either select an item from the list or cancel the menu; it can't be left pending during another action. (See section **Menu list**.)

The pop-up window is located above the control pane, and its height is dynamic; maximum size is approximately the size of the standard main pane. The content on screen outside the menu pop-up is dimmed.

Items in the options menu use the single item layout, that is, they are text-only. The number of items in a menu is not limited; the list scrolls as necessary. Options menu does not loop.

Only the functions that are available in the current context are listed in the menu; unavailable ones are removed. (See section **Hidden items** in the **Guidelines** chapter.)

Submenus

An item in the options menu can be a submenu title, leading to additional choices that are displayed in another pop-up window (on top of the options menu pop-up window) as a submenu.

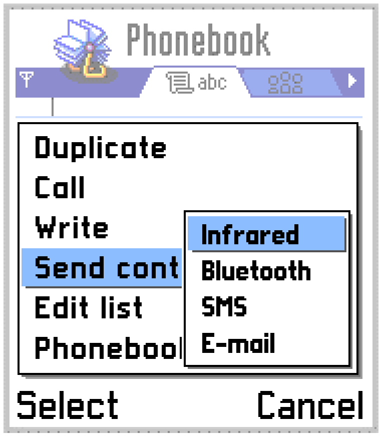


Figure 5-39. Submenu in the options menu.

The submenu is opened by pressing either the Left softkey (Select), Select key or Scroll right.

The user can close the submenu window by pressing either the Right softkey (Cancel) or Scroll left. The main menu window stays open, with the focus on the submenu title.

When an item in a submenu is selected, both the submenu and main menu windows are closed.

The following rules apply to submenus:

- The number of items should be low, so that the user does not need to scroll in order to see all of them.
- Functions should not sometimes occur in main level and at other times in a submenu. Items that are in a submenu should always be found in the same submenu.
- Only one submenu level is allowed, that is, a submenu can't contain another submenu.

Unavailable items

Situations often occur where a certain function cannot be used. In these cases, the corresponding items in the options menu must either be hidden, or there must be an error message given when the user tries to access a function that can't be accomplished. Series 60 UI does not use dimming of menu items.

This is a trade-off issue: removing unnecessary options makes the option lists shorter – an often desired result – but at the same time it changes the menu from situation to situation, preventing users from learning the function locations. It may even cause frustration if the users expect some function to be found in the menu, but it is sometimes not there.

- In case the user has no reason to search for a certain function in the given situation, it should be hidden. As an extreme example, the Delete option is not needed when there are no items to be deleted.
- If the user searches for a function, even though it cannot be used in the current situation, it is often better to display the option and give an appropriate message if the user tries to access that function.

Other option menus

Some option menus are accessed in other ways than by using the Options softkey. The usage of these menus is similar to the usual options menu. Examples of other such menus are:

OK options menu	The Select key opens this option menu when there's no single intuitive function (like opening the item in focus) for it. The OK options menu only lists functions that: - affect the item in focus only - could be regarded as potentially intuitive - are competing for the topmost place of the menu. Other functions can be accessed through the Options softkey. The number of items in the OK options list is usually two or three, it should never be more than four. As an example, in a message editor the functions in OK options could be **Send** and **Add recipient**.

	Delete operation should not be listed in the OK options menu. (The Clear key is a shortcut to that function.) In case there are marked items in a list, the OK options menu should include the mark/unmark functions. When a list is empty, it may make sense to offer a **Create new** type of option in the OK options – but only when it would be an appropriate function in the context.
Edit options menu	Opened by pressing the Edit key in a text editor. Contains only editing commands. See section **Text editing**.

Options template

The order of items in an options menu should follow the template presented below. (In specific cases, when there are strong arguments against the order in the template, the order can be changed.)

The option names listed here are generic names, not the actual texts used in the products. The texts may even vary between applications even though the logical item is the same.

- Items that should appear in every full options menu opened from the Left softkey are labeled **mandatory**. However, these items are not required in OK Options menus.
- For other than the mandatory items, only the items needed in each context shall appear in the options menu.
- Items specific to the context can be added among the common items, in the places where they best fit, considering the importance and probable usage frequency. The places where context-specific items may appear are represented as **+++** in the list.
- Submenu titles are indicated with ▸ and are followed by submenu items.

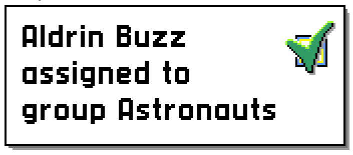
Open / Select /Change	**mandatory** when the Select key does an open/select function. 'Change' is used in setting lists. Same as the Select key function.
+ + +	
Call now	For immediate calling when a phone number is available (typically highlighted). For example in Phonebook, the phone number is in focus.
Send now	- Immediate sending in message editor, when an address exists. - Open a message editor when there is an address available.

Write ▸		Submenu for message writing
	SMS	Start writing a new short message.
	MMS	Start writing a new multimedia message.
	email	Start writing a new email.
Create new		Initiate creation of a new item. When more than one type of item can be created, a submenu may be used to select the type.
Send via (1) ▸		Submenu for initiating the sending of items using one of the available connections. (Not the same as "Send now".) In this location in applications where sending data is a primary function.
	SMS	
	MMS	
	Email	
	Bluetooth	
	IR	
Save		Save the current document. (In most applications this is not a necessary function as saving is automatic.)
+ + +		
Edit item		Enables editing of the current item, for example a form, or an individual item on a list.
Delete item		- Deletes the item(s) in focus (or marked) on a list. - Deletes the current item being viewed.
+ + +		
View info (1)		View detailed info about the current item. In this location in applications where this is a high-priority function.
+ + +		
Move		Move an item to a different location within the list or grid.
Move to folder		Move item(s) into a folder
New folder		Create a new folder
+ + +		
Edit list ▸		Submenu for functions used in markable lists.

	Mark / Unmark	Mark or unmark the current item, depending on the current state.
	Mark all	
	Unmark all	
Rename		Rename the item in focus.
	+ + +	
Add to contacts ▶		Submenu for functions used to add contact information into the Phonebook.
	Create new	Creates a new contact item.
	Update existing	Adds new field(s) in an existing contact item.
Find in text ▶		Submenu for functions used to extract contact information from text in viewers and browsers.
	Phone number	
	email address	
	URL	
	+ + +	
Send via (2) ▶		Submenu for initiating the sending of items using one of the available connections. In this location in applications where sending data is a secondary function.
	SMS	
	MMS	
	email	
	Bluetooth	
	IR	
View info (2)		View detailed info about the current item. In this location in applications where this is a low-priority function.
Print		Print the current item.
Add to Pinboard		Add a link to the current application or document into the Pinboard.
Settings		Access to application settings or context-dependent settings.
Exit		**mandatory** Exit the application.

Notes

- A *note* is a feedback component that informs the user about the current situation. A note contains a text and possibly a graphical element. The softkey labels are typically empty (a *wait note* is an exception to this.)



Aldrin Buzz
assigned to
group Astronauts

Figure 5-40. An information note.

- Notes do not require user input, although a user can dismiss most notes by pressing any key.

The following note types are in use:

confirmation note	Informs the user about a successfully completed operation. Short duration, subtle tone. (This should not be used after every kind of successful action; see the guidelines below.)
information note	Gives information about an unexpected situation during usage of the device. Longer duration and more noticeable tone than in a confirmation note. Errors that are not too serious should cause an information note.
warning note	Used when the user must be notified about something that may require action. Fairly long duration, and a sound that can be heard (and distinguished) even when not concentrating on the phone. An example: battery low warning.
error note	This is a red light. It should only be used when the user has tried to do something that may cause a considerable problem. See the guidelines below.
permanent note	A note that must remain on screen for an indefinite time. The user can't dismiss it. Example: insert SIM card.
wait note	A note containing a progress or wait graphic. (Wait graphic is an animation of indefinite duration, whereas progress graphic is a growing bar that can be used when it is possible to estimate the duration of the operation.) Used during operations that take a long time. The user should be able to stop the

operation. For this a softkey labeled, for example, "Cancel' is provided.

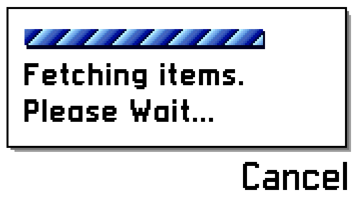


Figure 5-41. A wait note with a Cancel function in the right softkey.

Some guidelines concerning note usage:

Use a **confirmation note** when:

- The effect of the operation can't be seen directly by some other means.
  Example: Message sent.

- There is some relevant information to be communicated by it.
  Example: Last call duration.

Confirmation notes should not be used after every completed operation, this would easily start to annoy users. Confirmation notes should not be used when:
- There is already another dialogue in the procedure, for example "Do you want to remove this message? Y/N"
- A progress indication is visible during the procedure.
- The user can see the result of the operation when it is done. Example: adding or removing objects in a list.
- A setting has been changed. The new value of the setting is visible in the setting item.
- The operation can be considered minor or so frequent that a note would be annoying. Example: copy-paste actions.

Use an **error note** when:

- The user does something that may cause considerable harm immediately or later. Example: the user gave a wrong PIN code. Repeating this a couple of times would block the SIM card.

To keep the error notes effective, they should be used very sparingly. In most "ordinary" error cases, an **information note** should be used instead of an error note. It has less aggressive sound and graphics.

- It should also be noted that if the information to be given is such that the user must see and acknowledge it, a **confirmation query** is a better component to use than a note. Then the user must press a key to dismiss the information, and there is time to read and think about the notification.

Soft notifications

Soft Notifications are reminders that inform the user of events that have occurred in the user's absence, or while the user was busy with some application. Text, and also graphics, can be used to communicate the message to the user. Soft notifications are displayed in pop-up windows.

The user can respond to the soft notification by using the softkeys. The left softkey is used for activating a function, for example opening a message that has arrived. The right softkey is used to discard the notification without taking any further action.

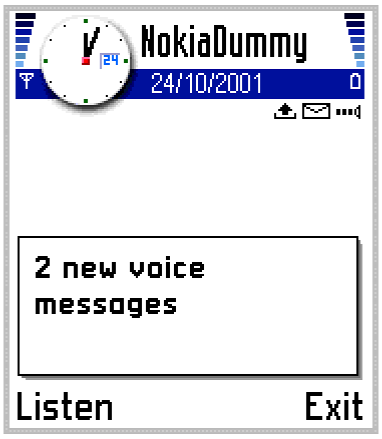


Figure 5-42. A soft notification indicating the arrival of voice messages.

Soft notifications are displayed only in idle state. If an event that causes a soft notification (for example a missed call) occurs when an application is active, it may cause other kinds of UI events to notify the user, but if the user does not react to these, the soft notification appears only after the phone is put in idle state – if the event still requires it.

The application that launched a soft notification can control it and also discard it. It is possible to use the Applications key during a soft notification; in that case the soft notification disappears, but reappears when the user returns to idle state, unless the application responsible for it has discarded it.

Soft notifications can be displayed for the user in two different appearances:

- **Ungrouped soft notification**
  These notifications contain one piece of information each. The appearance of the notification window is the same as a note's. The example in the previous figure is an ungrouped soft notification.

- **Grouped soft notification**
  Many different items of information can be combined into one soft notification where the items are displayed as a list. The user can pick up one of the items at a time and react to it. The appearance of this soft notification type is the same as a list query (see section Queries).

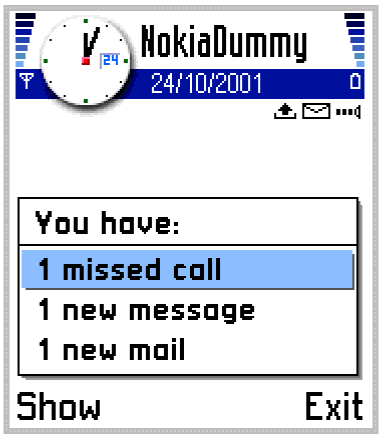


Figure 5-43: A grouped soft notification. The height of the window is dynamic and depends on the number of lines in the list.

Discarding soft notifications

The application that launched a soft notification can discard it without user intervention when the notification becomes obsolete. A soft notification should remain pending until the user has responded to it, or started using the corresponding application so that in effect the notification becomes obsolete. In that case the application can discard the notification even though the user may not have actually seen it.

When the user reacts to a soft notification by pressing the right softkey (for example Read), or selects one item of a grouped soft notification, the item becomes interpreted as obsolete, and will not reappear. If a soft notification contained more than one item, the other ones remain pending and reappear when the user returns to idle.

The user can dismiss the notification by pressing the right softkey, labeled Exit. After this, the notification does not reappear until new events cause a new notification to be created. In case of a grouped soft notification, all items it contains are discarded.

Many simultaneous soft notifications

Soft notifications are stacked in case there is more than one pending at a time: after the topmost one is discarded, the one following it will be displayed. Each notification has a priority value that determines the order of the notifications.

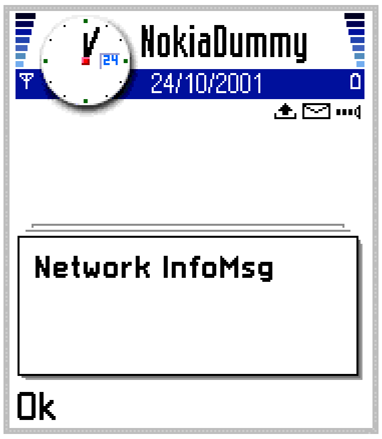


Figure 5-44. Several stacked soft notifications. Note the graphic indicating multiple windows.

Queries

A query is a state where the software waits for user input. Queries are used in situations with more than one way to proceed, when the application needs data from the user, or when it is necessary to make sure the user knows what is happening. A query must exit before the application can proceed.

Queries are displayed in pop-up windows. The following query types can be used:

- Confirmation query
  A question or notice with one or two possible responses.
- List query
  A question with a selection of more than two possible (predefined) responses.
- Multiselection list query
  Presents a list of items; the user can select any number of them.
- Data query
  Used for numeric or textual input.

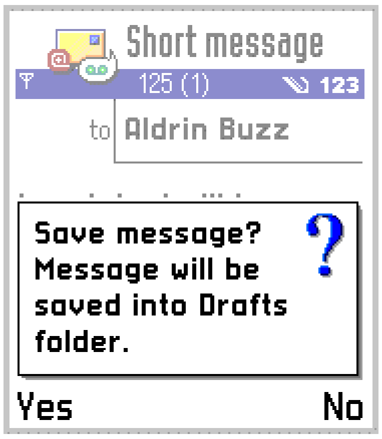
Confirmation query

A confirmation query requests the user to confirm an operation, or asks a yes-no-type of question. It can be used for instance to make sure the user does not accidentally delete important information or start an operation which cannot be taken back.

The layout for a confirmation query is the same as note layout, with an optional graphic item.

One or two softkey labels can be used. In case the query can cause two different consequences, the positive choice ('Yes') is placed on the left softkey, and the negative one ('No') on the right softkey. In pure confirmations, only one way to proceed is possible, and the response text (for example 'OK') is placed on the left softkey.

The Selection key always causes the same action as the left softkey.



Save message? Message will be saved into Drafts folder.

Figure 5-45. A confirmation query.

Guidelines for designing confirmation queries:

- When designing the prompt text, make sure the 'positive' answer is also the safe one. Users tend to proceed pressing the left softkey or Selection key without thinking too much.
- Use descriptive softkey labels whenever possible. For a query about deleting something, it is better to label the softkeys as 'Delete' and 'Keep' than use generic terms like 'OK' and 'Cancel' that are more complex to interpret.
- Redundant confirmation queries should be avoided. Do not add a confirmation query if there already are other forms of feedback, unless it is crucial that the user gets a certain piece of information.

List query

A list query offers a list of predefined choices for the user. It can be used when more than two options must be offered to the user. There is a prompt text (optional) on top of the window, and a list of options to choose from.

The list in a list query is a menu list: the user can select an item or dismiss the query; the Options menu is not available. The default softkey labels are OK on the left and Cancel on the right - actual texts can be specific to the context. The Selection key causes the same action as the left softkey.

Any list item layout suitable for menu lists can be used; see section List layouts.

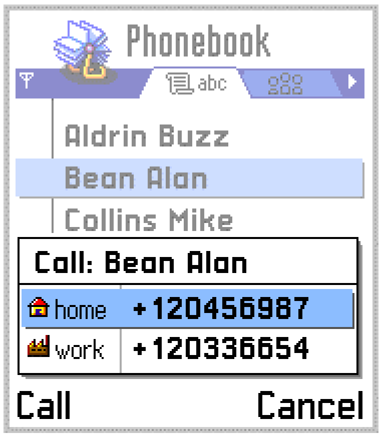


Figure 5-46. A list query.

The number of items in the list should be kept low, so that all items can be seen without scrolling.

Instead of a list, a grid can be used in a query. The grid query function is otherwise identical to a list query.

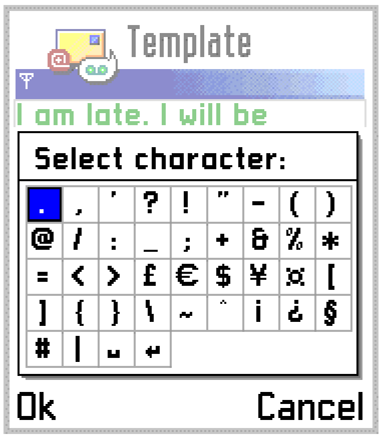


Figure 5-47. A grid in a query.

Multiselection list query

A multiselection list query is used when the user needs to be able to select several items from a list at the same time. See section Multiselection list for a description of multiselection list.

The left softkey ('OK') is used for accepting the query, and the right softkey is Cancel.

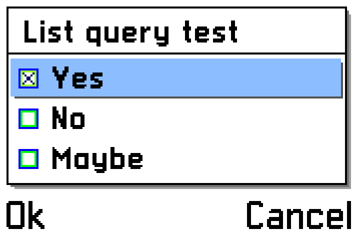


Figure 5-48. Multiselection list query.

Data query

A data query requests the user to type in some alphanumeric or numeric information, like a name or a phone number.

The query contains a prompt text and a user input field. The input field can have any type of editor, depending on context, so that the input may be restricted to for example numeric data, date or time only. Both the prompt and input fields can be longer than one line when necessary.

The softkeys of the data query are OK on the left, for accepting the input, and Cancel on the right softkey, for discarding the query. The Selection key accepts the input just as the left softkey.

Clear key is used for deleting characters, and for that purpose only.

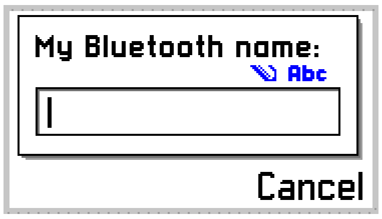


Figure 5-49. Data query. The input field may extend automatically to more than one line's height, and also prompt text may take two lines.

Password query

A specific case of data query is *password query*, used for confidential information like passwords or PINs. It uses the password editor, which functions very much like any other editor, except that instead of the actual data, a dummy character (asterisk) represents each input character. In case of a numeric-only password, the asterisks appear as soon as characters are entered. In case of alphanumeric input, to support typing characters by repeated presses of the same numeric key, the character is displayed normally for a short time, and then changed to an asterisk.

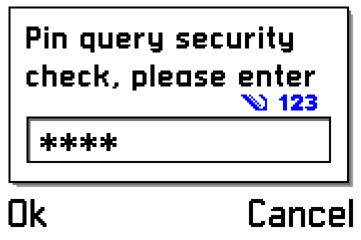


Figure 5-50. A password query window.

Data queries with multiple fields

It is possible to have two input fields in a data query. An example of this is a user name and password query: one field is then a normal alphanumeric editor and the other a password editor. In this case, a press of the Selection key moves the insertion point from the first field to the next; in the second field it accepts the query. The left softkey always accepts the query. The user can also move from one field to the other using scroll up and scroll down.

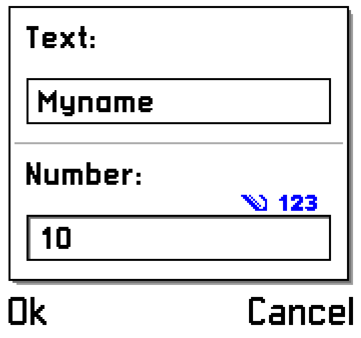


Figure 5-51. A data query window with two input fields.

Indicators

Indicators are graphical or textual objects on screen that provide information about the status of the system. They cannot be used for input, and there is no focus on an indicator: the user cannot point at an indicator to do actions.

The various indicator types in use are described in the following subsections.

Signal and battery indicators

The top-left area of the screen is used for the cellular signal strength indicator, and the corresponding top-right area for the battery level indicator.

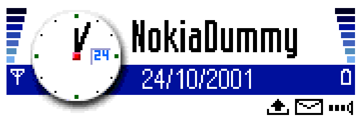


Figure 5-52. Signal and battery indicators on the sides of the status pane. Other status indicators are visible below the navi pane.

The signal indicator is part of the status pane, and it is displayed in all states where the status pane exists. The indicator consists of an antenna icon and a bar graph that indicates the current signal level. The antenna icon may be replaced by another icon indicating the GPRS connection status.

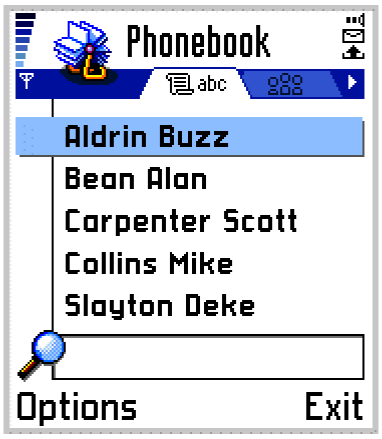
The battery indicator is displayed only in idle state and in Phone application. In other applications, the area is used for *universal status indicators*. The indicator consists of a battery icon and a bar graph.

Status indicators

Status indicators are small graphical icons. They inform the user about such issues as unread messages, waiting voice mail, selected phone line, IR and Bluetooth connection status, set alarm clock, home zone, and locked keypad. Each status indicator has a priority number, which determines which icons are displayed in case there are more of them than fit on the screen simultaneously.

In idle state, and in Phone application, the status indicators are displayed in the status indicator area below the status pane. (See figure 5-50.)

Within applications other than Phone, status indicators appear in the *Universal status indicator pane*, which is the same area as the battery pane. Due to the small size of this area, and also to avoid displaying unimportant things in general, only the most important status indicators are displayed there. This is true even in cases where an indicator could fit into the pane: only the most important ones do appear at all as *universal status indicators*, others are only seen in idle.



Aldrin Buzz
Bean Alan
Carpenter Scott
Collins Mike
Slayton Deke

Figure 5-53. Universal status indicators are displayed in the top-right corner.

Indicators in Navi pane

The navi pane can contain several kinds of indicators, depending on which way the pane is used in the particular context:

Left-right arrows	When sideways navigation between different main pane views is used, the navi pane displays the navigation information (tabs or text may be used).

Arrow icons on the left and right ends of navi pane indicate the possibility to move in the corresponding directions. (With tabs, the arrows are only displayed when all tabs are not visible.)

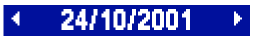


Figure 5-54. Arrows in navi pane.

Editing indicators

When an editor is in use in the main pane, the indicators related to editing parameters are displayed in the navi pane. They indicate things such as the editing mode (numeric/alphanumeric), character case, predictive text status, and available space.

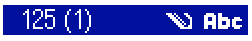


Figure 5-55. Editing indicators in navi pane.

Audio volume indicator

Used in applications where audio volume adjustment is necessary, as in Phone.

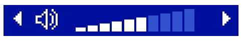


Figure 5-56. Volume indicator in navi pane.

Editing indicators in pop-up windows

When a pop-up window contains an editor that needs editing indicators, it is not feasible to use the navi pane for the indicators. For this purpose, a specific area in the pop-up window, above the editing field, can be used for displaying the editing indicators. (See the Text editing section for an example.)

Soft indicators

Soft indicators are textual indicators displayed in the main pane of the idle state. Examples of cases where a soft indicator can be used are call charges indication and MCN (Micro-Cellular Network) area indication.

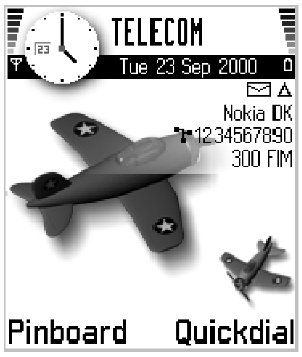


Figure 5-57. Soft indicators in the main pane.

Operator indicator

In idle, the title pane contains the operator indicator. It is either a text or a graphical image.

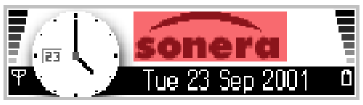


Figure 5-58. A graphical operator indicator in the title pane.

Scrolling indicators

Arrowhead-shaped icons that indicate the scrolling status in lists are situated between softkey labels in the softkey pane. Refer to section Lists and grids for detailed description of the indicator functionality.

Application-specific indicators

Applications may need indicators specific to their own purposes. Such indicators can be placed into the navi pane, if it is available, or into some part of the main pane. However, using the main pane this way may require the use of a specific main pane layout. Notice also that the icons present in many list item layouts can be utilised as indicators.

6. APPLICATIONS AND DESIGN EXAMPLES

Idle

The Idle state is the basic state of the device. It displays information about the current state of the device, including connection status, battery level, and network operator. Refer to the UI Components section for detailed information about the indicators.

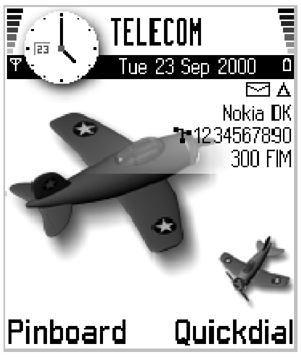


Figure 6-1. Idle screen.

Functions of the keys in idle are as follows:

- The softkeys can be configured by the user to access various applications.
- Scroll up, scroll down: open the Phonebook.
- Scroll left, scroll right: unassigned by default, may be assigned by the user.
- Select key: ignored.
- Numeric keys can be used to dial a phone number manually; a press of a numeric key opens a number entry window. A long key press in idle is used for one-key calling to the number assigned to the key.
- A short key press of the Power key opens a list of Profiles for switching the active profile.
- Applications key enters the Application shell, as usual.

The user may have a possibility to set any image as background 'wallpaper' in idle.

It is also possible to have a 'screen saver' application that may use the whole screen while the device is not used. It should be noticed, however, that soft notifications and other indications on screen would not be visible during this kind of application.

Application shell

The Application shell is the menu used for accessing all applications. Pressing the Application key opens the Application shell, where the user may browse and select an application. Applications are presented as a grid of items by default; the user can also choose to use a list presentation. Pressing the Select key opens an application and closes the Application shell. Refer to the Application handling section for detailed information about opening and closing applications.

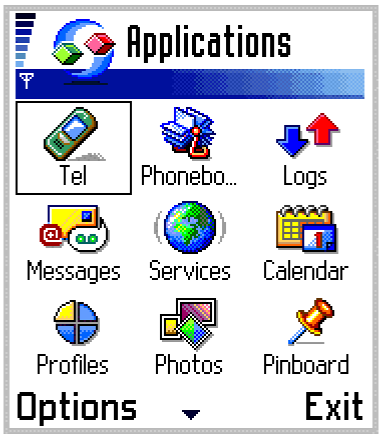


Figure 6-2. Application shell.

Shortcuts

When the Application shell has been opened and no navigation has taken place, the numeric keys 1-9 can be used as shortcuts to selecting an application. The keys are mapped directly to the 9 icons in the shell's initial view, so that key 1 corresponds to the top-left application and key 9 to the bottom-right one.

When the user starts scrolling, the shortcuts are not available. Notice also that numeric shortcuts do not exist inside applications in general.

Customizing the Application shell

The user can adjust the order of applications, as well as create folders and move applications into folders within the Application shell. These managing functions are available through the Options softkey on the left.

Fast application swapping

There is a shortcut to swapping between applications that are currently running. A long press of the Applications key opens the fast swapping pop-up window that contains the icons of the currently running applications. The user can browse and select one of these in the same way as in the full Application shell.

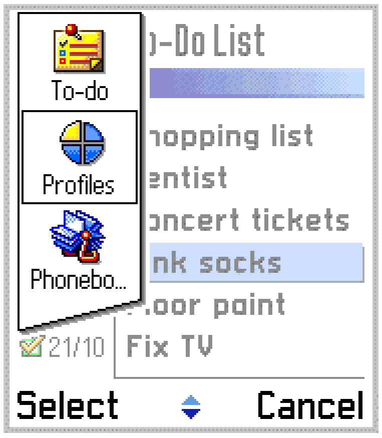


Figure 6-3. Fast application swapping window.

Application handling

This section describes the handling of applications, and interactions between applications, in the Series 60 UI environment.

Some basic assumptions:

- There can be only one instance of each application at a time. This means that when the user selects an application in the Application shell, there is never a confusion about which process it refers to: either there is one running instance of the application, in which case it will be displayed, or there is none, in which case a new process will be created.

- However, software modules that several applications can use (such as editors) may run simultaneously in more than one application. The user may thus see the same feature being run in several different applications at the same time.

Opening and closing applications

Applications are typically opened using the *Application shell*, the menu containing all installed applications.

There may be other ways to open an application, such as:

- Assigning a shortcut to an application into a softkey, to be used in Idle state.
- Using a link in Pinboard (see section Pinboard).
- Using a specific shortcut built in to another application.

When there is no instance of the opened application already running, a new process for the application is created. If the application is already running, opening the application means bringing the existing application process on top. In case of a link that points to a specific state in an application, the existing application is interrupted and forced into the target state. See section Multitasking for more information on this.

The user can close applications in the following ways:

- Using the right softkey, which goes backwards in the application hierarchy (**Back**) and finally exits the application (**Exit**).
- Using the Exit function in the Options menu.

Closing an application means that the processes associated with it in the working memory are terminated.

Application processes can also be terminated by the system, for example when the user powers down the device.

Multitasking

The Series 60 UI style allows multitasking, that is, working with more than one application simultaneously. To accomplish this, an application can be left running when switching to another application, and it is possible to swap between running applications and interact with them.

To open another application without terminating the current one, the user can press the Applications key to go directly into the Application shell, and select the other application from there. The first application process then remains running in the background while the user is interacting with the second application.

It is possible to swap between two or more running applications by using the Application shell.

It is also possible to go to Idle state of the phone and leave an application running. This can be done by pressing the End key, or by selecting the Phone application from the Application shell. (The Phone application and Idle state are mutually exclusive states in the phone: when there is a voice call going on, there is no Idle state.) During a phone calls, however, the End key is used for terminating the call and cannot be used as a shortcut to Idle.

The number of simultaneously running (different) applications is limited only by the available memory in the device. When a new application process can't be created because of limited memory, the system can automatically shut down applications to gain more memory space.

Application interactions

There are two different models of interaction between applications:

1) Use of modules (services) that can be called and run within several different applications. In this model, a service or library function is running within the application the user was originally working with. The applications do not conflict with each other when this model is used.

   It should be noted that from the user's point of view, each item in the Application shell is seen as an application. A specific service can be run in any number of these applications at the same time, so the user may see a similar screen in many applications running simultaneously. But the user cannot launch a new instance of any of the applications in the Application shell before terminating the existing one first: selecting a running application will simply revert to the existing one.

   The Back function works normally in this model: the user can step back from an embedded module to the calling application; the modules may even be nested.

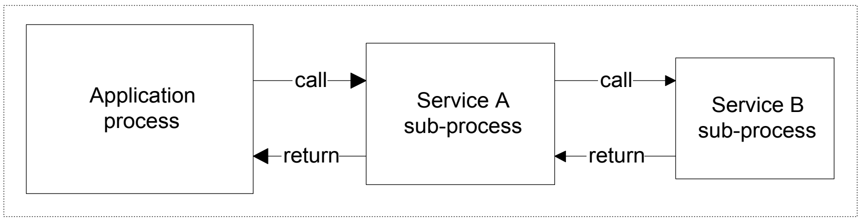


Figure 6-4: Nested services running within an application process. The Back function leads to the parent process.

2) Actually switching from one application to another to accomplish a task. In this model, the other application may need to be interrupted if it is already running. This model is needed when links from one application to another are used.

   Whenever an application needs to be interrupted, the system takes care of all pending data. If there's information that needs to be saved, the system saves it automatically into a default place, and if there's a pending dialog it will be canceled. The user is not asked questions; all the operations needed to bring the application to the target state are done automatically.

After switching applications in this way, the Back function does not lead to the previous state. Instead, it functions as if the user had manually entered the second application and navigated to the target state: it leads to the previous state in the second application's internal structure even though the user did not actually navigate through it.

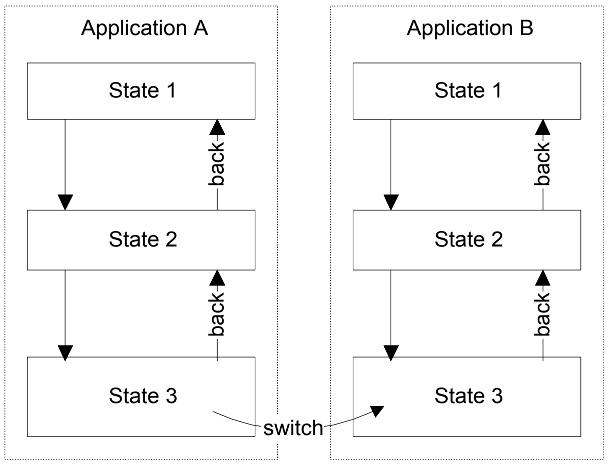


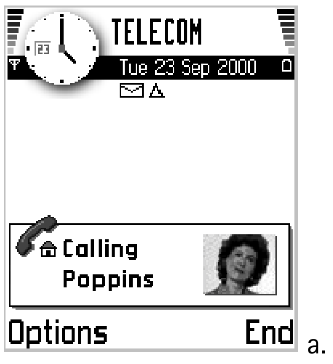
Figure 6-5: Switching between applications, interrupting application B. The Back function works inside application B, it does not lead back to application A.

Phone

Phone is the application for handling voice calls. It is a central application in the device. The idle state, described, earlier, can be thought of as a part of the Phone application: calls can be created by dialing from the idle state, and whenever there are one or more voice calls going on, the Phone application takes the place of idle; both can't exist simultaneously.

In Application shell, the first application is Phone. If there are no calls when the user selects it, the device will go to idle state.

In simple one-call cases, the Phone application looks like this:



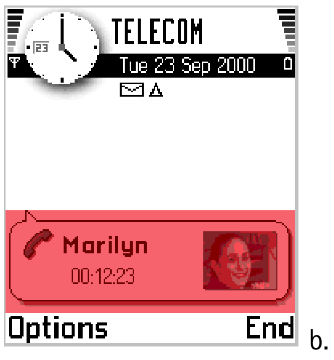
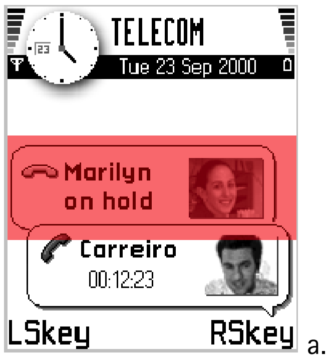
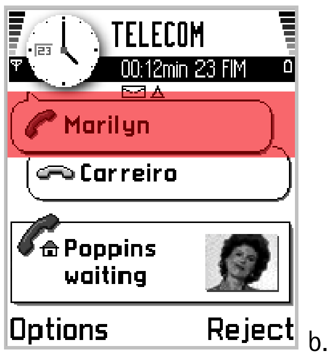


Figure 6-6. Phone application examples: a. Creating an outgoing call; b. Active call going on.

More complex cases, where more than one call is involved, may also happen. The locations and sizes of individual call windows change according to the situation:





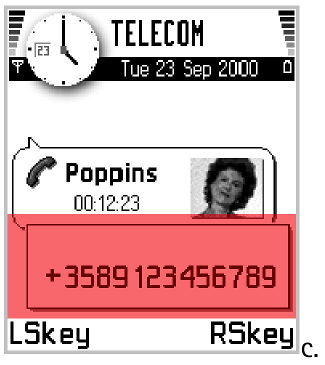


Figure 6-7. Phone application, multi-call cases: a. One call active, another on hold; b. One active, one held, one waiting call; c. User is entering a number while another call is active.

When there are ongoing calls, but some other application than Phone is on top, the call windows are reduced into a small pop-up window in the top-right corner.

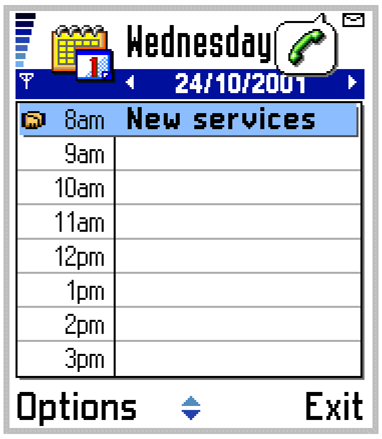


Figure 6-8. Call status window, used when Phone application does not reside on screen.

Call handling

Calls are handled using the Send and End keys as follows:

Send	- Answers the incoming call when the phone rings or there is a waiting call. - Creates an outgoing call when there is a number entry window active. - Puts active call on hold; unholds a held call; swaps held and active calls.
End	- Rejects the incoming call. - When an active call exists: ends the active call. - When only a held call exists: ends the held call. - When both active and held calls exist: ends the active call, makes the held call active.

A basic rule is that Call handling keys accomplish the same functions whether the Phone application is on screen or not, so the user need not swap applications for these operations when using another application. (However, some applications may override the Send key and use it on a local function: for example, in Messaging, Send can be used to send a message.)

Volume control

In case the hardware has no dedicated volume keys, the sound volume is adjusted using the scroll left and scroll right keys. The volume indicator is in the Navi pane.

It is worth noticing that the user must be in the Phone application (or another audio application) to be able to adjust sound volume if dedicated volume keys do not exist.

The same volume adjustment method is used in other audio applications.

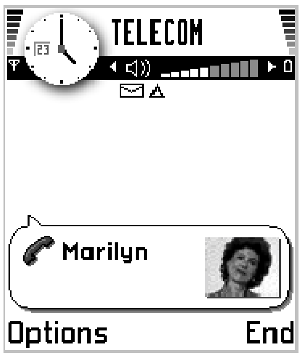


Figure 6-9. Volume indicator in the Navi pane.

Viewers and players

Viewers are used for displaying read-only data. Examples of viewers are SMS, e-mail, and image viewers.

To edit or create new data, the user starts an *editor*; the viewer may offer an option for starting an editor.

When a piece of read-only data is presented, no focus is needed, as the user does not need to access any individual object within the data – it is only necessary to be able to go through the data. We can imagine the data projected onto a virtual strip of paper that the user can move within the viewing window. There is no need to point at a specific part within the data, but a viewer may be able to zoom in and out.

Text viewers

Text viewers should in general follow these guidelines:

- Text is wrapped according to the width of the viewing pane. There should be no need to scroll sideways while reading the text.
- Up and down scrolling should proceed page by page. A press of scroll down key displays the next screenful of text. (Note that in editors, text is scrolled line by line.)

Image viewers

A still image viewer is a tool optimized for viewing photographs or other images. A dedicated image viewer may offer features like zooming and scrolling, full screen viewing, and adjustments of image parameters like brightness and contrast.

By default, the image should initially be scaled so that it fills the available screen area.

Viewing functions are available in the viewer's menu of options. However, the numeric keypad may also be used to control some of the functions – this allows quick access to frequently used functions, such as zooming.

Multimedia viewers

For viewers that support several forms of data, the capabilities should be extended, while still keeping the core functions consistent with text viewers. For example, the viewed data may contain graphical still images that are displayed among text. The following additions to the earlier rules are applied:

- When necessary an embedded image shall be scaled down so that it can fit the display as a whole. If the scaling capabilities are limited, a moderate amount of oversize can be allowed.

- When scrolling the data, the user should be able to see each image completely. This means that at least one scrolling step should let the user view the full image. (If scrolling would occur strictly one screenful at a time, an image could be split into two parts, each one in a separate screen.)

- The user should able to view an embedded image better by opening it into an image viewer. (Note that a focus may exist in order to select the desired image, although application designs without focus are also possible.)

- After viewing an image in a separate image viewer, the user shall be able to come directly back to the multimedia viewer, in the position the user started from.

Audio and video players

Audio and video are time-based data. The players for such data need at least the following functions:

- Play

- Pause
  Stops the player, but leaves the pointer in the current location so that playing can be continued later.

These commands can be mapped to the same key, as only one of them is needed at all times. These functions shall be accessible by a single key press. The positive action softkey is preferred for this purpose.

Additional functions may include:

- Stop
  Ends playing the clip and positions the pointer in the beginning of the current piece or section (audio or video clip).

- Next piece
  Moves to the beginning of the next piece.

- Previous piece
  Moves to the beginning of the previous piece.

- Forward / Rewind
  Fast playing of the piece, using short audio clips, forward or reverse.

- Faster / Slower
  Changes the speed of playing the audio, without changing the pitch. Can be useful with voice memos, for example.

Playing functions shall be available in the player's menu of options. However, the numeric keypad may also be used to control some of the functions.

Text editing

This section describes the common principles of text editing, focusing on Latin based scripts. Requirements of other writing systems and input methods, such as those used for Chinese or Arabic, are not covered in detail.

Character input is accomplished using the numeric keys. The ITU-T standard for numeric keypads specifies the mapping of Latin (English) characters to the keys, assigning three or four letters to each number key from 2 to 9. The input of a specific character can happen either by repeated key presses within a time-out, or using some language-specific algorithm (such as T9 by Tegic) that tries to find correct characters according to the produced key sequence.

Other keys have specific functions assigned to them during text editing:

1 key	Punctuation. Most used punctuation characters are available using repeated key presses within a time-out.
*** key**	In alpha mode, offers the next match in T9 input. In alpha mode, a long press opens a special character grid, where the complete set of punctuation and other characters are displayed. One character can be picked at a time. In number mode, produces the * character, repeated presses produce other characters allowed within phone numbers: +, p, w
# key	In alpha mode, changes the character case (uppercase, lower case, text case). In number mode, produces the # character.
C key	Clears the previous character from cursor. In case more characters are selected, clears all selected characters.
Edit key	Press and release: opens an edit menu (see description below).

Selects characters when pressed simultaneously with navigation keys (see section Selecting text below).

Edit menu

Editing-specific functions can be accessed using the *Edit menu*. It is opened by pressing the Edit key when in text editor. The Edit menu looks and works just like the Options menu, but it contains only text-editing functions whereas other available options remain accessible in the Options menu. The content of the Edit menu is as follows (note that items that do not apply to the editor in use do not appear in the menu):

Predictive text options ▸		Submenu for predictive text options
	T9 on/off	Temporary setting of predictive input.
	Matches	
	Insert word	
	Edit word	
Alpha mode		Switch to alpha input mode.
Numeric mode		Switch to number input mode.
(other input modes)		Other available input modes are listed as individual items in the menu. The other modes may be language-specific.
+ + +		
Cut		The clipboard functions allow importing and exporting chunks of text.
Copy		
Paste		
Undo		Undoes the latest editing actions.
Insert number		Opens a data query where the user can enter a number, and inserts the number into text.
Insert symbol		Opens the special character window. The same action as a long press of the * key.

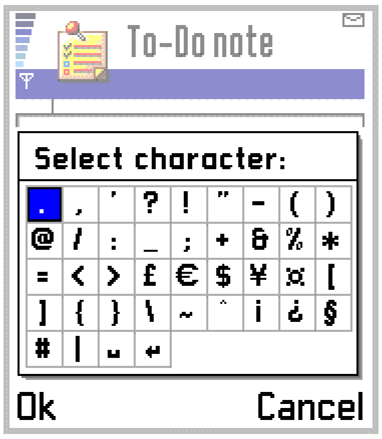


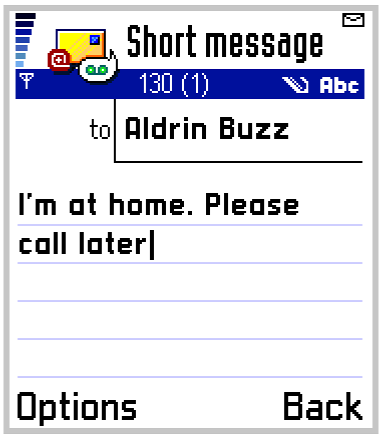
Figure 6-10. Special character window.

Editing indicators

The status of the editor is displayed using graphic indicators. They inform the user about things such as:

- Editing mode (numeric/alphanumeric, language-specific modes)
- Character case
- Predictive text status
- Available space

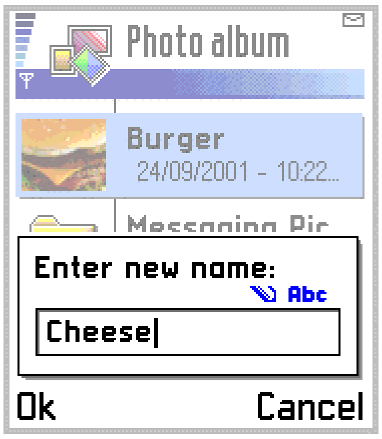
When the editor is in the main pane, the indicators are located in the navi pane. A data query that resides in a pop-up window has its indicators within the window.



to Aldrin Buzz

I'm at home. Please call later

a.



Enter new name:

Cheese

b.

Figure 6-11. Editing indicators in navi pane (a) and above the editor field in a pop-up (b).

Selecting text

A chunk of text can be selected in an editor by keeping the Edit key pressed and using the navigation keys (scroll left/right/up/down). The selected text is shown using a highlight. The Cut and Copy functions are available when text is selected.

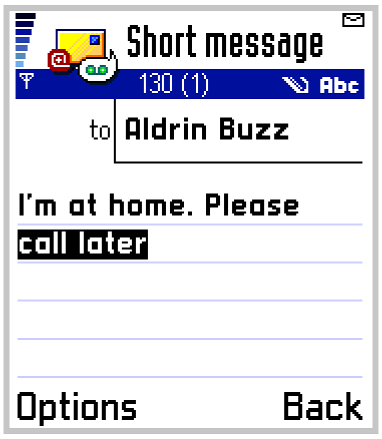


Figure 6-12. Text selection in an editor.

If the user presses any scroll key alone when there is a text selection, the selection disappears and the cursor reappears in the respective position.

Document handling

Creating new documents

The user must be able to start typing (or otherwise creating) a new document without first being asked for a file name. In many cases, documents don't even have a name that would be seen by the user: short messages and notes, for example, are listed and managed by the beginning of the content.

Some document types have a file name the user can choose. Even then, the system may give a default name for the document, and the user is not forced to name it. When it is important that the user knows the document name, the following methods can be used:

- The system asks the user to confirm the name, using a query with the default name in place. This can happen at the moment the user is about to exit the editor, or when the user has selected the Save option.

- In some applications it makes sense that the user can give a default name in advance, and the system creates unique names from it by adding for example a number after the common name. This way it is possible to have meaningful document names without typing them for each file.

Saving edited data

Various kinds of documents may have different requirements concerning the behavior of keeping or discarding the edited data. Typically one enters data, or modifies it, in an editor, and then closes the editor accepting the new data. But sometimes there may be a need to do something else, like cancel the edit, or save an intermediate version of the data.

Simple **queries** and **setting items** offer the user one input element (an editor or a list), presented in a temporary window. The softkeys are OK and Cancel. Select key is assigned the same action as the left softkey: they Select both accept the input and close the query. Cancel softkey discards all changes and returns. There is no need to ask for a confirmation from the user. The actions are clear, and the accepting option can always be seen in the softkey.

A **form** is a view with more than one input element. Form element types are text (and numeric) fields, pop-up lists and sliders. A form may have separate view and edit states; to go from view to edit one has to select Edit in the Options. Most forms do not appear in the view state at all; the items are then always editable. In the edit state, the user can move from one element to another and do changes.

Forms are somewhat different from queries and setting items, as individual fields do not require an explicit accept action – one can move freely between fields and edit at free will. The user can accept the whole form in one command.

In case there are no context-specific functions (other than acceptance and canellation of the form), the interaction can be made similar to that of queries: the left softkey is Done and the right one Cancel. This arrangement is easy to understand.

However, often there are functions that must be accessible while editing the form, for example adding new items to the form. In that case, an Options softkey is needed, and the form can't be accepted simply by using the left softkey. The solution to this problem is to assign the Done function to the right softkey. Pressing it accepts the data in the form and returns to the appropriate place. In case we need to offer the cancel function too, it can be added into the Options, using a descriptive name like Discard changes.

Document editors (such as a message editor) usually need the Options softkey. There may be message sending commands, preferences, help and other functions that need to be placed in the options menu. In this case, too, the right softkey will save the data and return to the appropriate place; it is labeled as Close. A note telling where the data was saved should be given in case it is not obvious within the context.

In some applications there may be a need for discarding all changes, or saving intermediate versions of the document. These functions can be placed in the options menu as required. It is worth noticing though that sometimes technical restrictions – memory limitations etc. - may prevent for example discarding all changes to the document.

Folders

When there are a lot of data items to be managed, it makes sense to divide them into smaller sets. A *folder* is a place where a set of items can be collected. A folder can be present among single items in a directory, but it can be opened in order to view its contents. Users are able to create folders and delete them, move items into folders and out of folders, and rename folders and change other properties of folders (depending on application).

In Series 60 UI, hierarchical folder structures are not allowed. In other words, a folder cannot reside inside another folder.

The normal methods for managing folder are as follows:

- To create a new folder, the user selects the **New folder** option while in a data items list.
- To add items into an existing folder, the user selects the **Move to folder** option while the focus is on the item to be moved. A list of existing folders is offered, and the user can select the target folder. (To add more than one item at a time, it is possible to mark items using the marking feature.)
- The functions for folder managing (Move to folder, New folder) are available in a submenu called **Organize**.

Groups

Groups are another means of managing data in a container. But unlike folders, groups do not contain actual data – there are only links to data that exist elsewhere. This makes it possible to access the same data from many places. A typical application for groups is a distribution list: one can collect a set of addresses into one group, to send messages to all the addresses by just referring to the group, and the same addresses can be present in any number of different groups.

Groups can be managed in much the same way as folders. There are some differences, however:

- Groups are presented in a separate group view, not within the actual data items list. The group view can be a tab view within the application.
- To create a new group, one goes to the group view and selects the option **New group**.
- To add items to a group, one must be within the target group view, and select the **Add items to group** option there. A list of items is then presented, typically as a multiselection list, for the user to choose from.

Fetching data

Often it is necessary to be able to pick up a piece of data from an application, such as a phone number or address from the Phonebook. This is called *fetching*. It is a read-only operation: the user cannot edit the data, only browsing and selecting are possible.

Browsing data during a fetch operation should resemble the application's normal use: the data should be arranged the same way so that it is easy to find. Only the available functions are different: the data can't be edited.

The left softkey during a fetch operation is labeled **Select**, and it activates the same function as the Select key: it selects the data currently in focus. The right softkey is **Cancel**, and returns to the previous state without bringing back any data.

Sometimes it is feasible to use a multiselection list for fetching data. This should be done when it is probable that the user wants to select more than one item for fetching. An example of this is creating a group in the Phonebook to be used as a distribution list: a list of names is offered to the user, and since the probable intention is to have more than one name in the group, a multiselection list is a good tool to use. (See section Multiselection list in the UI components chapter.)

Settings

Global settings – the ones that affect several applications or general issues within the device, are collected into the **General Settings** application.

Application-specific settings are handled within the application UI. They should be collected into a *settings view* that can be accessed via the Options menu. The Settings option exists at least in the application's initial or basic state, and possibly also in other states where it would be beneficial to have easy access to settings – especially to some context-dependent settings. The settings view is a list of setting items (see the list item type description in the List types section).

Sometimes a general setting may be duplicated as an application-specific setting. The order of priorities for duplicate settings must be specified case by case. For example, a general predictive text setting could be overridden by an application-specific setting, but a general 'silent mode' setting within a profile should be effective regardless of any other tone settings.

If the number of setting items (within an application) is large, it may be necessary to divide them into groups. The grouping can be done in the following ways:

- Use tabs to access different setting groups
- Design a hierarchical setting tree, use 'setting folders' in the top level (there may be individual settings and folders in one list; this is an exception to the rule that only setting items should exist in one list).